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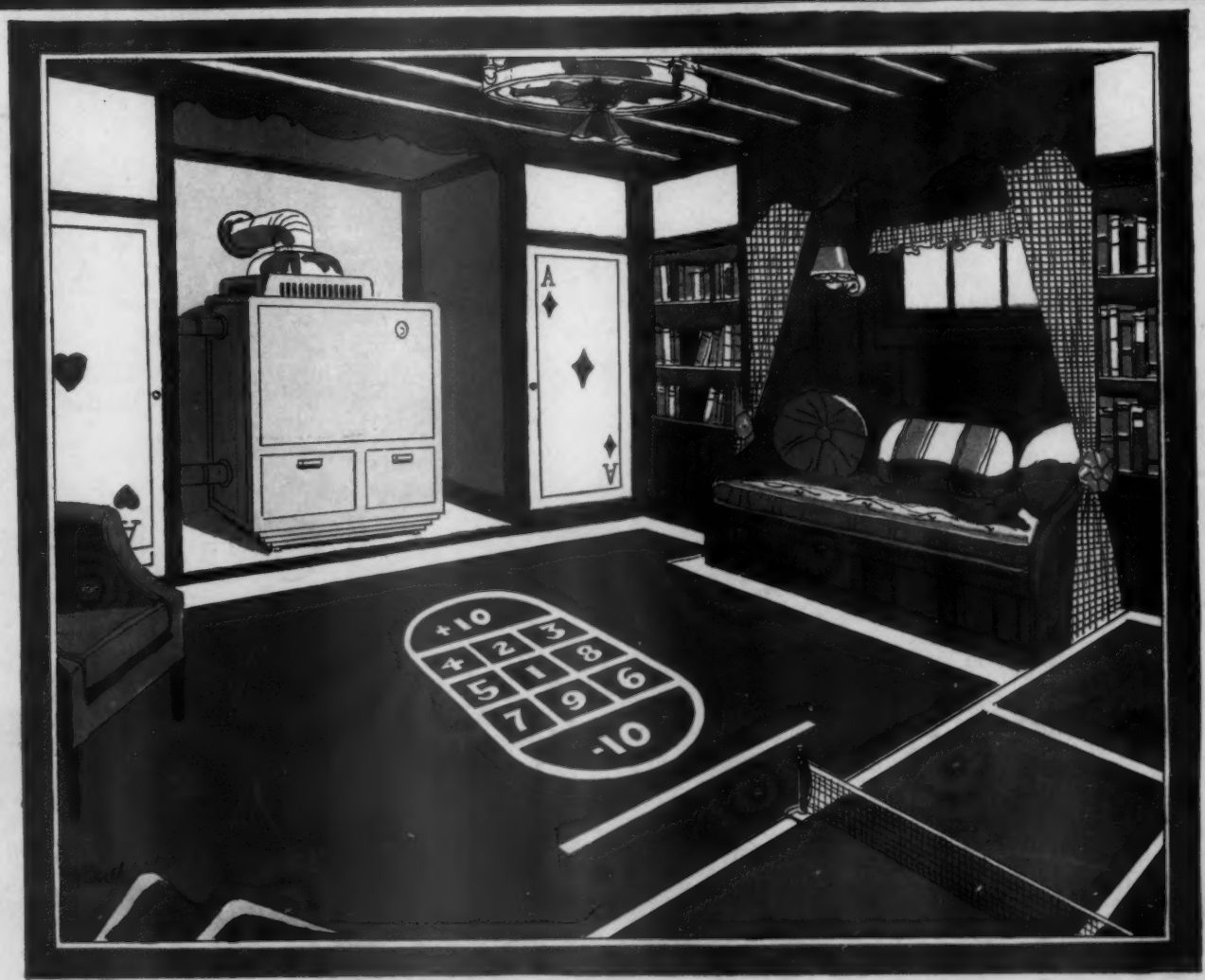

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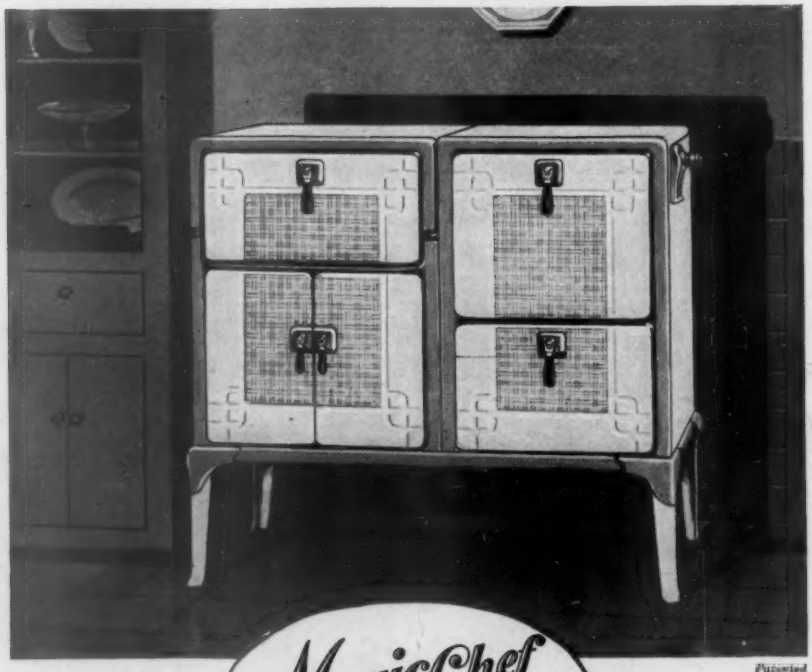

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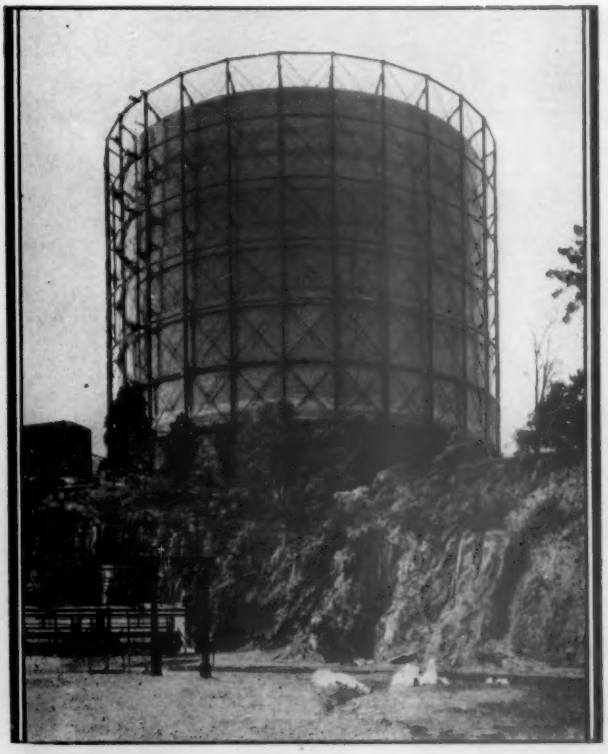

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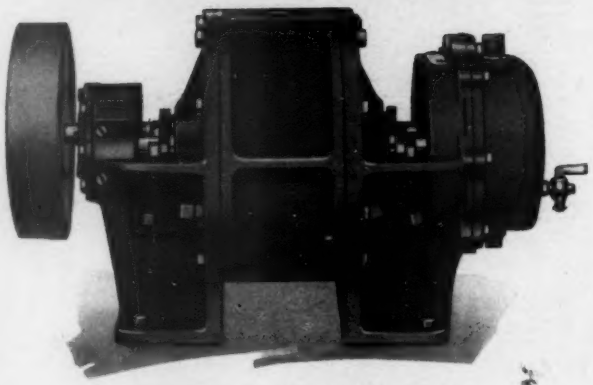

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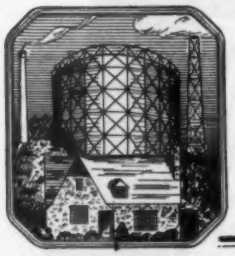

As We See It

What of 1933?

PREDICTIONS are easy to make—but the backlash is sometimes not entirely pleasant. Nevertheless, we are of the opinion that the end of this year will find the gas industry in a much better position than was the case on December 31, 1932. We believe that more plant equipment will be installed and more appliances sold. We stand our ground, unpleasant blacklash to the contrary notwithstanding.

The Requisite Quality Must Be Maintained

HERE and there one hears much talk that, due to the competition from other fuels, the price of gas must be reduced, the implication being in most cases a reduction that will immediately place the cost of a useful therm of gas on an equal plane with the cost of an equivalent amount of heat from any serious competitor. At the same time, there is no inconsiderable demand for cheaper appliances. Still further, a tendency exists to discount the intangibles that are claimed for gas service.

As far as rates are concerned, gas companies, it would seem, should be in a position to determine accurately just what, if anything, can be done; they possess the facts and are more familiar with them than anyone else.

Concerning intangibles, perhaps these should be scaled down a trifle as important selling accessories; however, in passing it might be mentioned that the electric folks, in their range selling efforts show no disposition to dispense with or pare down these same intangibles.

Coming to the matter of the quality of appliances, most of us whose careers in the industry hark back to the time when energetic selling of appliances came into vogue, well know the pangs that were endured by reason of the complaints and hazards attending the sale of below-standard appliances. In this connection, we append hereto the thoughts of an old line appliance manufacturer:

"There are certain fundamentals of business, certain economic laws which in the long run will rule. That fuel will survive only which renders the utmost in service at the lowest comparative cost. The poorer the service rendered, the lower the cost for that service must be, and, likewise, the better the service, the greater is its value to the user.

"Gas must compete with coal, with oil, with electricity. Gas only will survive, in the proportion that it gives the customer the most for his money, and to avoid disastrous reduction in the price of gas, so as to make it *cheaper* than other fuels, the Gas Company should utilize and sell and by example and precept, persuade dealers to sell only the highest type appliances that the market affords. Highest in quality of materials, highest in quality of service and the highest possible economy of operation. Cheapness in price cannot supply these essentials.

"Never before has price been so paramount in the gas industry, and at the same time, never was quality of service and economy of operation so absolutely essential to gas, as the fuel which is to survive, as it is today.

"Sound practices, high ideals, which have proved sound in the past, should be maintained now as never before. Policies based on temporary gain will quickly be costly when our troubles are over, and that man, that Gas Company. that organization, will survive which carries its ideals strongly and steadfastly through the present storm and stress, to the economic calm that is to follow."

Edwin Ruud

SEARCH back through the many inventions that have so materially assisted the gas industry in attaining its present high position and you will fail to find one that, for sheer ingeniousness, surpasses the automatic valve and thermostat which Edwin Ruud patented and incorporated in the water heater which bears his name. Further, this water heater has had a very marked influence, not only in building gas sales, but in bringing comfort to thousands of households.

In the veins of Edwin Ruud coursed the blood of the old Vikings who counted hardship and adventuring into the unknown a part of their existence, and it must have been some of such traits which enabled him to bring his invention to perfection.

The name of Edwin Ruud may well be ranked with Lowe, Welsbach and Bunsen as contributors on a large scale to the advancement of the gas industry and his career of inventive success should serve as a guiding light to us long into the future. Another stalwart of the industry has passed on.

Possible Markets

THE study of social trends instituted by President Hoover and recently completed has evoked comments, pro and con, no end. Nevertheless, it contains some facts and figures which would seem to lend themselves to careful and profitable study.

We find that the Committee's report brings out that the following articles and commodities have increased in output during the slump as compared with 1929: Coffee, perfumes, cosmetics, bathtubs, citrus fruits and corsets. At the same time, the report reveals that the sale of canned goods and sewing machines declined. In view of such data one might properly speculate as to whether our gas business has a tie-in with the situation.

Considerable quantities of coffee are roasted with gas fuel. Perfumes and cosmetics immediately conjure up thoughts of beauty parlors which obviously require lots of hot water in carrying out their rituals in beautifying feminine America. Bathtubs not only indicate hot water to be used in them but a large proportion are enameled in gas fired kilns. As for citrus fruits and corsets we confess almost complete inability to associate gas in any manner with them, although such connection might possibly exist.

A decline in the amount of canned goods sold clearly indicates one of two things; first, folks are not eating as much as previously or second, canned goods are being replaced by more food prepared at home from the raw state. We believe the second reason is the fact of the case, and this is all to our good. Lack of the sale of sewing machines likewise is due to, either that the housewife is laying in smaller quantities of clothes or is buying more clothes ready made; possibly, a bit of each factor makes up the cause. In any case, if less sewing machines are being bought, less time is being spent at operating the same and consequently, more time is available for other duties about the house.

From the above speculations some pertinent questions might be asked. Are you sure that all of the beauty parlors in your city are using gas in a maximum number of applications, and do they have real up-to-date appliances? Have you been able to get most of the coffee roasters in your town to use gas as the fuel? If you have a bathtub manufacturer in your town, is the same using gas fired kilns? Also, is your water heating load increasing in proportion to the increase in the output of bathtubs? Is your Home Service department making capital of the dwindling use of canned goods? Does not more leisure, if any, give more time in which to talk gas appliances to the housewife?

Ten or less years from now many of us will hear some company's or individual's name mentioned as being in affluent circumstances and investigation will disclose that such affluence was accumulated or started during the present depression. Then, a further inquiry will show that these affluent folks used their wits and worked the fringes while the vast majority of companies and individuals indulged in gloom parties.

The moral is based on the question, can we by study and horse sense (a very rare trait here of late) take on more business, even now?

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Bridge Operating Machinery—Vertical Lift, Bascule, Draw Bridges
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Aqua Ammonia
Concentrated Ammonia
By-Products Plants—Special Machinery
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January, 1933

AMERICAN GAS JOURNAL

Established 1859 Pioneer of the Gas Industry

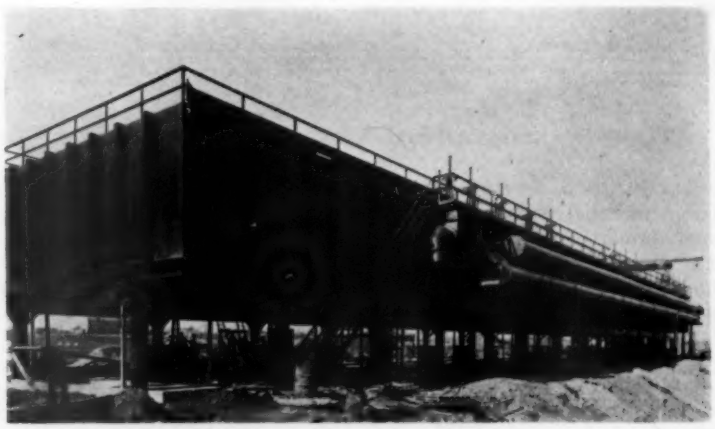
HENRY M. RILEY

Editor

Principles and Procedure in Purifier Box Design

T. F. BRIGHT

Structural Engineer, Kansas City



All Welded Purifier, designed for a working pressure of 54 inches of water column, erected by Western Gas Construction Company.

IN designing a purifier box there are several questions which must be decided by the gas engineer before the structural engineer can proceed with his work. These are as follows:

1. The pressure under which the box is to operate.
2. The capacity or rectilinear dimensions of the box.
3. The number and depth of the layers of oxide. (The height and depth of the box can be determined from this data.)
4. The number of compartments.
5. Is the purifier to be housed or out of doors?
6. Is the purifier, if out of doors, to be elevated, foundations at ground level, or foundations below ground level?
7. If purifier is out of doors, are steam coils or lagging to be provided?
8. If of the elevated type, total clearance or clear height beneath the super-structure.
9. Is provision for future extension to be furnished?
10. Accessories to be provided, i.e.,
    - Shape and number of top doors or covers.
    - Side doors.
    - Bottom dump doors (if of the elevated type).
    - Size of connections.
    - Gantry crane.
    - Oxide elevator and its capacity.

This article constitutes a chapter from the paper, "A Comparative Study of a Riveted Type and a Welded Type of Purifier," this paper being the winner of a hundred dollar prize awarded by The Lincoln Electric Company in its recent Arc Welding Prize Competition.

In addition to the above listed information, it is also imperative for the structural engineer to obtain accurate data on the soil capacity at the site.

The layout of the purifier box, preparatory to the actual designing work becomes rather complicated in some cases due to the necessity of correlating details so as to obtain interlocking members and details.

Top Covers of Ample Size

The top covers or doors are made as large as possible to facilitate loading and unloading of the purifiers and also to provide the greatest amount of ventilation during these operations. These covers are carried on an inner deck girder, which in turn is supported by knee braces, located on the interior of the box at the upper end of the vertical stiffeners.

The upward pressure of the gas against the covers or the dead weight of the covers combined with the snow load and lagging (if provided), depending upon whether the box is in operation or not, is sustained by the cover stiffener beams, running parallel to the long dimension of the covers.

The reactions of these stiffener beams is taken by the inner deck girder, (transferred by the cover hold-down bolts if the box is in operation) to the knee braces and thence to the vertical slide stiffeners.

To transfer these reactions in as direct a line as possible to the vertical side stiffeners, it is necessary to have the cover of such dimensions as to give the same spacing center to center of the cover stiffener beams as are used for the vertical side stiffeners and also to pro-

vide vertical stiffeners at the four corners of the cover to obtain an evenly supported cover.

Further, the spacing of the supporting girders for the upper tray beams must be such as to place their ends at vertical stiffeners, this is to prevent a tendency to cause the side, end or partition plates to bulge inward.

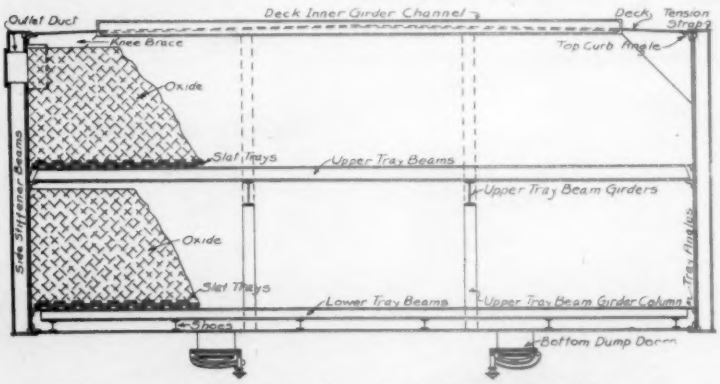


Fig. 1—Transverse Section through a typical Oxide Purifier.

Also, if two covers are necessary per box or compartment, the supporting girders of the upper tray beams must be placed so that their supporting columns can be extended and used as deck columns, which serve the deck situated between the covers.

Location of Members to Avoid Interference

If bottom drains or dump doors are employed, also side doors, care must be taken to see that the tray beams and the vertical side stiffeners do not interfere with the functioning of these doors.

In addition, if the box is of the elevated type, the transverse beams of the sub-structure must be correlated with the tray beams and vertical side stiffeners of the super-structure.

During the following discussion of the design theory of purifier boxes reference will be made to various sketches, which in the majority of instances indicate welded details, this is for clarity and does not restrict their use to the one type of construction since the theory of design applies equally well to the riveted and welded box. Where details or connections differ, the discussion will appear in the specific design.

We shall discuss the general theory by taking the members in the following order;

1. Members situated in the interior of the box.
2. Cover and deck.
3. Side, end and partition vertical stiffeners.
4. Side, end, partition, deck and bottom plates.
5. Foundations.
6. Sub-structure of the elevated type.
7. Gantry crane and oxide elevator.

The working pressure is almost entirely expressed in inches of water column, one inch being equal to 0.0362 pound per square inch.

As stated above, the structural engineer, after obtaining the dimensions of the box, must then prepare a layout of the plan of the box in order to locate the position of the lower and upper tray beams together with their supporting members.

The upper and lower tray beams are spaced uniformly across the box, preferably parallel to the short dimensions, as near three feet as possible, this being the almost universal short dimension of the trays.

The short dimension of the trays is employed as their loaded span to prevent excessive deflection thereby avoiding overstress in the tray material.

No theoretical analysis of the strength of the trays has been attempted since actual tests as to their load capacity were made in the field under working conditions, showing that a superimposed load of 400 pounds per square foot produce a negligent deflection when spanning their short dimension.

Allowable Tensile Stress for Members

All structural members in the interior of the box are designed for an allowable tensile stress of 16,000 pounds per square inch. Bending on extreme fibers of rolled shapes and built up sections has the same limitations. These allowable unit stresses are 2,000 pounds per square inch lower than the recognized allowable stress generally employed, so that we have a certain protection against corrosion.

All interior columns or struts are designed conforming to the A.I.S.C. specifications, which allow for a maximum static stress of 15,000 pounds per square inch using a slenderness ratio of not more than 120.

In determining the loadings on the various interior members the weight of the wooden trays has been found from actual weighing to be 3 pounds per square foot.

A series of tests conducted to determine the greatest weight of the oxide resulted in showing that the foul oxide gave the greatest weight, i.e., 80 pounds per cubic foot, while that of the fresh oxide was found to be 30 pounds per cubic foot.

The lower tray beams are supported by tray beam shoes or straight runs fabricated from perforated I-beams or channels. The writer is partial to the tray beam shoes which are either four or six inch lengths of 4" I's @ 9.5 pounds per foot or 6" I's @ 12.5 pounds per foot. These are selected because they can be taken from scrap and also permit better drainage of the box and freer passage of the gas, than the perforated structural shapes.

The shoe adjacent to the side walls is located at a distance of from three to four feet therefrom in order to provide additional hold-down to the side walls gained from the lower tray beam reactions, and to prevent excessive flexure in the plates of the bottom during operation.

The shoes are investigated for flange and web buckling and punching shear on the bottom plate.

The edges of the trays along the sides, ends or partitions of the box are supported by straight runs of

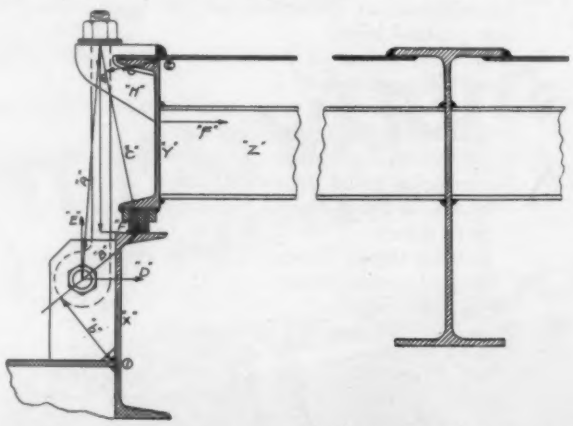


Fig. 2—Forces acting on Hold-down Bolts, Cover Lute and adjacent members.

angle iron or plates fabricated to act as a continuous supporting bracket. In addition to supporting the edges of the tray these angle or plate "rings" prevent by-passing of the gas and also act as a horizontal support for the side, end or partition plates.

Upper tray beams are located directly above the lower tray beams, center to center spacing being identical.

If the distance spanned by the upper tray beams results in an uneconomical section, supporting girders are run at right angles to the upper tray beams, and are so located that their connection to the end or partition plates come at a vertical stiffener beam as explained previously.

Reason for "Simple Beam" Design

The tray beams and the supporting girders are all designed as simple beams. The question can be asked, "Since the beams and some of the girders are continuous over the supports, why are they not designed as continuous beams?" The answer is that in loading and unloading the boxes, the beams are not loaded for the full length of their entire continuous span and also that the loading in some cases will be a uniform or varying load for a portion of the span only. Or, looking at it from another point of view, since the continuous beam design gives a moment equal to approximately eight-tenths of a simple beam design, we could say that we have gained additional protection against corrosion.

If the span of the supporting girders of the upper tray beams is too great to obtain an economical size of girder, columns are used as intermediate supports, same being located at the most advantageous position to afford a free entrance for loading and unloading.

When more than one top door or cover is supplied per box or compartment, the columns, which act as intermediate supports for the upper tray beam girders, are located so that they may be employed to support the deck extending between the covers. These deck columns not only act as a support for the dead load of a certain portion of the top, snow load, and dead weight of the lagging (if provided) and their poriton of the oxide load, when the gas pressure is off, but also as tension ties, to provide hold-down against the up-lift caused by the gas pressure on a certain portion of the deck and cover.

Provided the weight of the oxide which is transferred by the tray beams and girders to the columns is not sufficient to provide hold-down against the above mentioned up-lift, it becomes necessary to securely anchor the base of the columns to the bottom and the foundation or substructure.

Figure 1 is a right line drawing showing a transverse section through a typical oxide purifier, giving a general idea of the various members heretofore discussed, also those mentioned in succeeding paragraphs of this chapter.

Attached to the interior of the side, end and partition plates at the top of the vertical stiffener beams and to the under side of the deck plate and the inner deck girder, also to the upper portion of the deck columns, when they are employed, are located knee braces. These knee braces are so located that they will transfer in as direct a line as possible either the up-lift against the deck and the top cover or the dead weight of same plus the snow load and the lagging, if provided, to the vertical stiffener beams and the deck columns; a knee brace as explained previously, being located at each side and end vertical stiffener and two at each interior deck column and partition plate vertical stiffener.

The knee braces are generally of angle iron or plate construction. If of the former type they are designed as an inclined strut for the downward dead weight, and as a tension tie for the up-lift.

If made of flat plate construction, the knee brace is calculated as a stiffener between the right angled flanges of a girder. The right angle girder consists of the deck plate and inner deck girder in conjunction with the side plate, upper curb angle (if provided) and vertical stiffener beams or in the case of the interior deck columns, of the deck plate, deck girder and the columns.

Spacing of Cover Stiffener Beams

In the design of the top covers, experience has shown that the ideal center to center spacing of the cover stiffener beams is between four and five feet. These stiffner beams are placed parallel to the long dimension of the cover and so designed, with an allowable unit stress of 16,000 pounds per square inch, to carry the majority of the up-lift against the cover, or the dead weight of the cover, snow and lagging (whichever case governs), to the ends thereof.

At the end of each cover stiffener beam is placed a hold-down bolt with intermediate hold-down bolts midway between adjacent beams, thus giving a center to center spacing for the hold-down bolts of from two feet to two feet six inches.

The cover end hold-down bolts are so designed, with an allowable tension of 9,000 pounds per square inch, as to transfer the load from the cover stiffeners to the knee braces.

Side hold-down bolts are spaced at approximately the same distance, center to center, as those on the ends of the cover, although the amount of the up-lift which they are required to transfer is far less than that of the end bolts. This arrangement is for general appearance and uniformity of design.

When the hold-down bolts are tightened (and it should be remembered that there have been cases when eight and ten foot extensions have been placed on the wrenches, allowing three men to exert a tremendous leverage on the nuts), a force "A" is exerted, as shown in Figure 2, between the center of the horizontal bolt pin and the center of the washer under the nut bearing on the cast-steel hold-down bracket "H". This force, "A", causes compression on the cover lute which can be represented by forces "B" and "C."

Force "B" tends to cause the channel "X" to rotate in a clockwise direction about the point "1", the intensity of this turning moment being force "B" multiplied by the lever arm "b."

To counteract this inward rolling action of the deck channel, the knee braces are attached to the lower portion of the deck channel. Although this prevents a certain amount of the rolling action, bending is set up in the web of the channel. The method of counteracting the web bending differs with the type of construction and shall be dealt with in the specific design.

Considering now the cover channel, the force "C" causes an inward rolling action of this channel in a counter-clockwise direction about the point "2" or the heel of the channel. This action is resisted only by the stiffness of the cover plate. The intensity of this rolling action is equal to the force "C" multiplied by the lever arm "c". To prevent this action, backing-up beams, as shown, are attached to the webs of the cover channels and the stiffener beams directly behind each hold-down bolt (illustrated in both Figures 2 and 3), these beams act as struts or columns.

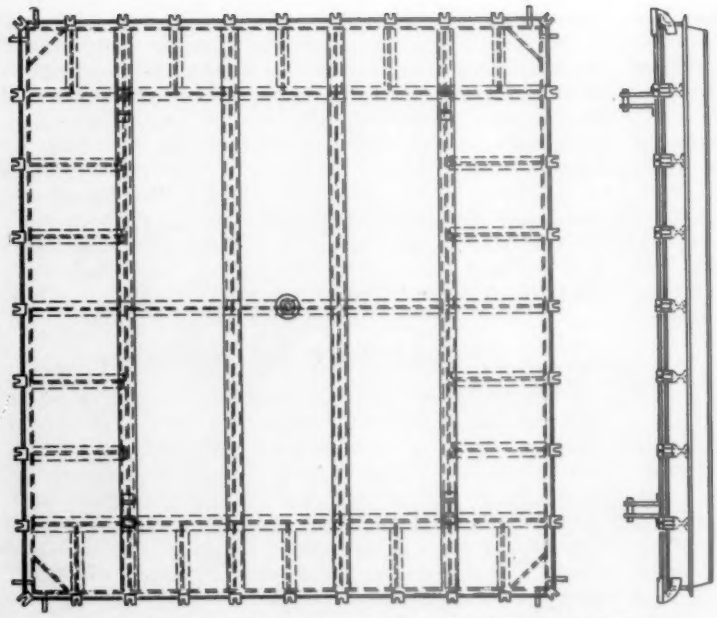


Fig. 3—Disposition of Backing-up Beams and Stiffener Beams

The brackets, "H", also tend to bend the web of the channel by the inward pressure exerted at their toes (shown as "F"). Therefore, the upper flange of the beams are placed as near as possible to the toe of the bracket so as to have as large an area of metal at the point of application of this force as possible.

When the pressure is turned on deflection is caused in the top plate which adds to the rolling action of the cover channel, although the outward pressure against the channel tends to reduce this somewhat. This additional action must also be taken into consideration in the design of this detail.

It might be added that the small backing-up beams (see Figure 3) materially aid in giving a cover which, when lifted, will not rack out of its original shape. Also, the larger secondary beams, as shown in this figure, are employed for the same purpose.

(Continued in February issue)

Heating and Cooking Equipment (Other Than Electric)—Production, by Class, Kind, and Value: 1931 and 1929

[The figures for 1931 represent production; those for 1929 refer to sales (shipments or deliveries) by manufacturers.]

	1931	1929
Steam and hot-water heating apparatus, stoves and ranges (other than electric), warm-air furnaces, fittings and valves, and air-conditioning equipment, aggregate	$261,064,563	$490,981,999
Made in the heating and cooking equipment industries	252,583,061	467,087,332
Made in other industries	8,481,502	23,894,667
Steam and hot-water heating apparatus, stoves and ranges (other than electric), and warm-air furnaces, total	223,479,171	400,801,946
Steam and hot-water heating apparatus, total	40,199,423	90,679,061
Steam and hot-water heating boilers and parts, total	18,627,853	40,324,406
Cast-iron boilers	14,072,415	33,152,631
Steel boilers	3,470,013	5,332,172
Parts	1,085,425	1,839,603
Radiators, total	16,758,243	41,116,099
Cast-iron	15,312,011	37,919,080
Copper	1,138,857	2,757,207
Other	307,375	439,812
Unit heaters	4,813,327	9,238,556
Warm-air furnaces, parts, and registers, total	24,508,639	43,311,273
Warm-air furnaces	18,163,024	32,579,551
Parts and registers	6,345,615	10,731,722
Stoves, ranges, water heaters, and parts, total	104,881,587	181,437,004
Coal and wood, total	30,967,884	66,593,923
Coal and wood cooking stoves and ranges, total	17,806,396	32,098,463
Porcelain-enameled	12,924,046	21,375,485
Other than porcelain-enameled	4,882,350	8,762,852
Not reported separately as to kind	.....	1,960,126
Coal and wood heating stoves, total	10,205,962	23,621,431
Cast-iron and cast-steel, enameled	7,290,498	18,014,935
Cast-iron and cast-steel, not enameled	2,594,644	4,878,038
Sheet-metal (air-tight, etc.)	320,820	
Not separately reported as to kind	.....	728,458
Coal and wood water heaters (domestic supply)	1,104,296	1,443,897
Coal and wood stoves, ranges, and water heaters not separately reported	.....	5,784,105
Parts for coal and wood stoves, etc.	1,851,230	3,646,027
Gas, total	56,195,028	93,772,195
Gas cooking stoves and ranges, total	36,863,395	57,354,006
Porcelain-enameled—		
With insulated ovens	17,598,998	7,069,985
With uninsulated ovens	13,717,937	35,940,896
Not separately reported	.....	6,809,371
Other—		
With insulated ovens	1,751,391	280,650
With uninsulated ovens	3,795,069	6,803,973
Not separately reported	.....	449,131
Gas hot plates	545,286	(1)
Gas room heaters, total	4,819,780	11,569,718
Porcelain-enameled	1,534,144	(1)
Other	3,285,636	(1)
Gas water heaters (domestic supply)	11,335,989	18,203,497
Gas stoves, ranges, and heaters, not reported separately as to kind	.....	3,627,477
Parts for gas stoves, ranges, etc.	2,630,578	3,017,497

	1931	1929
Steam and hot-water heating apparatus, stoves and ranges (other than electric), and warm-air furnaces—Cont.		
Stoves, ranges, water heaters, and parts—Continued		
Kerosene, total	$11,146,919	$14,090,040
Kerosene cooking stoves and ranges, total	6,994,732	11,352,202
Porcelain-enameled	2,527,121	5,793,806
Other	4,467,611	5,558,396
Kerosene room heaters, total	1,104,870	1,112,400
Porcelain-enameled	147,009	359,048
Other	957,861	753,352
Kerosene water heaters (domestic supply)	226,089	447,903
Parts for kerosene cooking stoves, ranges, and heaters	2,821,228	1,177,535
Gasoline, total	2,472,022	3,850,533
Gasoline cooking stoves and ranges (except camp stoves), total	1,298,628	2,181,760
Porcelain-enameled	1,063,503	1,913,094
Other	236,125	268,666
Gasoline water heaters (domestic supply)	20,682	42,338
Gasoline camp stoves	281,302	538,618
Parts for gasoline cooking stoves, ranges, and heaters	871,410	1,087,817
Combination (coal, wood, and gas) cooking stoves and ranges, total	2,386,009	(1)
Porcelain-enameled—		
With insulated ovens	530,546	(1)
With uninsulated ovens	1,639,927	
Other—		
With insulated ovens	43,998	
With uninsulated ovens	161,538	
Other stoves, ranges, and water heaters, total	1,713,725	3,130,313
Laundry, orchard, etc., stoves	593,159	(1)
Other water heaters (solar, indirect, etc.)	734,128	(1)
Stoves, ranges, and water heaters, kind not specified	586,458	(1)
Other cooking and heating apparatus and supplies:		
Fuel-oil burners (residence type), total	18,733,726	21,354,818
For furnaces—		
Mechanical or forced draft	14,945,314	19,696,666
Atmospheric (natural) draft	226,514	
For stoves and ranges—		
Mechanical or forced draft	276,675	1,661,152
Atmospheric (natural) draft	2,797,594	
Fuel-oil burners, kind not specified	488,629	.....
Gas burners (domestic), total	1,727,397	(1)
For furnaces	1,083,274	(1)
For stoves and ranges	644,123	(1)
Parts for fuel-oil and gas burners	941,949	(1)
Stokers, mechanical (domestic)	1,026,505	1,115,657
Incinerators, total	496,188	908,391
Gas-operated household type	140,970	128,764
All other incinerators	355,218	779,627
	1931	1929
Steam and hot-water heating apparatus, stoves and ranges (other than electric), and warm-air furnaces—Cont.		
Other cooking and heating apparatus and supplies—Continued		
Portable ovens	$944,371	$2,882,153
Steam tables, except electric	299,657	1,321,867
Coffee urns and tanks, except electric	313,359	
Waffle irons, except electric	23,381	
Iron cooking utensils (hollow and flat)	522,331	7,241,420
Other cafeteria, hotel, and kitchen apparatus	2,916,570	
Heating and cooking equipment, kind not reported	1,261,834	
Specialties, total	24,682,254	50,550,322
Thermostats and other temperature-control devices	10,951,982	(1)
Gauges	1,516,963	(1)
Reducing valves	1,261,029	(1)
Regulators	2,529,322	(1)
Traps	2,799,208	(1)
Other specialties	5,623,750	(1)
Air-conditioning equipment	1,371,454	(1)

(1) No comparable data.

—*U. S. Dept. of Commerce, Bureau of the Census.*

Gas Statistics for 1932

REVENUES from manufactured gas in the United States in 1932 aggregated about $413,250,000, representing a decrease of 5.1 per cent from the 1931 figure.

While total sales of manufactured gas to consumers registered a decline of 4.8 per cent, according to preliminary estimates of the Association's Statistical Department, an outstanding exception to the general trend was the increase shown in the use of gas for house heating purposes. In 1931 sales of manufactured gas for house heating purposes were 19,908,100,000 cubic feet but during 1932 this figure rose to 20,445,600,000 cubic feet, an increase of 2.7 per cent in this class of business.

The decline in natural gas sales for domestic and commercial purposes was relatively small, amounting to less than 5.4 per cent. In keeping with general economic conditions, however, natural gas sales for industrial purposes registered a decline of about 15 per cent. In addition to this decline in ordinary industrial sales, the amount of natural gas used for non-utility purposes including manufacture of carbon black and consumed in oil and gas field operations apparently declined some 22 per cent, with the result that the entire consumption of natural gas for all purposes during 1932 is expected to run about 16 per cent under the corresponding figure for 1931.

Natural gas customers in 1932 were only 1.1 per cent fewer than in 1931.

The economic situation offers an easy mark for agitations for reductions in rates, although further reductions, in most instances, will imperil the public service. The American Gas Association, however, is fully alive to the situation. We have set up a committee composed of foremost executives of the industry for a comprehensive national program, which is expected to prove of immense value in keeping our business stabilized and in extending an essential public service. Manufacturers of gas ranges and other appliances are active and alert. We are continuing our research program. The continued improvement and consequent insurance of safe and efficient appliances in the home and automatically controlled appliances in industry are some of the most apparent proofs. I think, that the gas industry is alive to its future and to the needs of reviving industry.

Alexander Forward, Managing Director, American Gas Assn.

Window Display Realism

STUART BRATESMAN

Manager Display Dept., Boston Consolidated Gas Co.

MAKE it real . . . have it actually exist! Realistic illustrations in window displays carry their messages to the passersby much quicker and easier than the suggested type of art work. Don't misunderstand me, the suggested type most certainly has its place . . . the comparison is that realism clears up a lot of hazy detail in advertisements requiring quick, legible sales messages for effectiveness.

We are rapidly becoming a country of picture-conscious people. Pictures exercise a tremendous influence on the average person. One has only to consider the immense popularity of the comic strips, motion pictures, picture magazines and papers using a full rotogravure section to realize that pictures are a big seller of merchandise or entertainment. This fact holds true in window display advertising. People will be stopped every time by a colorful, human illustration . . . and realism helps do this through the very nature of its appeal.

The effect of suddenly coming face to face with the giant gas flame in the display shown on this page can be readily imagined. The flame was four feet high and painted in realistic blues. It was illuminated from behind so that at night it was clearly visible for blocks.

Just a word about bases in displays. You will notice that the lettering panel in this display rests on a thin base strip. This base is a very definite part of the design and is very vital to the final appearance in the window. Without bases, displays assume a sign background and appliance effect, even if the art work and lettering is of the highest grade. For a long time this writer labored under the impression that gas window displays needed no bases. He figured that what went on the background really counted; that all else was so much extra work. Recent adoption of bases in all our displays has clearly shown the necessity of this added part of the set-up. Have bases in all your displays, especially if there is an appliance present. They give the added effectiveness of a complete setting.

The frying eggs in the cooking display with these lines has the appearance of realism, even to the filmy yolks. Natural colors were again used to give a realistic effect to the person on the sidewalk. This advertisement clearly shows the strong possibilities of realism in display work . Again, in this set the appliance rests on a base; this time a fairly high one. This brought the range well above the average eye-level, which isn't in keeping with the accepted method of showing ranges, (that of always being able to see the top burners), but it does present the stove in a new setting and at a new angle.

Mention might be made here of the odd caption, "Breakfast," with this display. When using odd lettering of this type always keep in mind that foreign faces should not be overdone in this country. In Paris, where this type originated, people are used to reading it on their store fronts and in their magazines, but over here it is comparatively unknown and should be used only at intervals in single lines or words requiring emphasis or effectiveness as a headline. Stick to the accepted American types in body copy.

In these days of hurried passersby displays that instantly arouse attention are invaluable sales-builders.

Realism helps do this . . . and remember, window displays cost less to prepare than any other type of advertising reaching the masses of people it addresses.

How to Make Industrial Sales Now

"THE fundamental problem of the seller of industrial equipment at the present time is to prove to the buyer the net profit which will arise from the purchase of his equipment," Mr. Herbert P. Bailey, President, The Rotor Air Tool Company, said in an address on the subject of "How to Make Industrial Sales Now" at the recent Industrial Marketing Conference of the American Management Association.

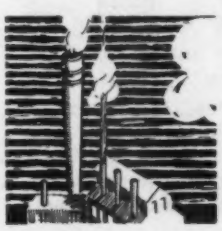
Mr. Bailey emphasized the fact that today those who buy industrial equipment buy in order to reduce the cost of existing production. This is in contrast to the major motive of the years 1928 and 1929 during which buyers were stimulated to consider ways of increasing production.

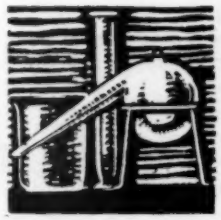
"Today our selling presentation should visualize in facts and figures the opportunity for the customer to realize net profits from the purchase of our equipment to reduce costs," Mr. Bailey said. "Our sales presentation must face the fact that the scale of production of our customers is low, and hence our net profit summary must reflect accurately the results which will be realized under the actual shop conditions of the customer.

"In order to overcome the existing financial resistance to buying," Mr. Bailey continued, "our presentation should summarize the facts in the form of the percentage of net profits to be expected from the investment. This is the language of the treasurer, and the only basis on which he will release cash for investment in fixed assets. The selling process today must be broadened to carry the sales presentation through the factory executive to the treasurer and chief executive, and the sales should, therefore, contain all the facts necessary for a decision by each of these executives, inasmuch as equipment buying is definitely controlled by the chief executive in consultation with the treasurer.

In his address Mr. Bailey suggested a method for the sale of industrial equipment under present conditions, which he illustrated by an actual example selected because it was typical of the net profit approach to equipment selling.

"The practical application of the net profits approach to equipment selling requires first of all a change of the point of view of the individual salesman," Mr. Bailey stated. "Instead of 'selling equipment,' he is now focusing his attention on increasing the net profits of his customers. He is interpreting his product to the buyer with definite evidence of how fast it will pay for itself rather than devoting his main energy to a discussion of the product itself, to competition or to generalities. In order to prepare a net profit statement, the salesman is forced to get the necessary production facts. The resulting net profit statement must be presented and checked with the factory executive to be sure the facts are correct. In addition the salesman must now sell the treasurer and chief executive type. The approach to these men is, of course, best made through the factory executive by helping him to get the appropriation, but any attempt by the salesman to leave the matter in the hands of the factory executive for presentation to the chief executive is weak. This in turn requires that the salesman must make preliminary contact with the treasurer and the chief executive types.





"This process," Mr. Bailey went on to say, "involves an adjustment of the sales organization which requires the same amount of intensive thought and work that the introduction of any new idea requires in sales work. The sales manager must first of all understand the net profits approach himself. The necessary sales manual explaining the net profits approach must be prepared. The Estimating Department must learn to use the new approach effectively in their estimates. The method must be taught in the field by practical example of the sales manager. Naturally, advertising and sales promotion plans will stress the net profits motive in publicity and advertising.

"This all requires time," Mr. Bailey said. "Only as an individual works out sales methods for himself is the change successful. Hence, a period of constant education and example is necessary. The use of the net profits approach, therefore, will be effective only as fast as you can train and persuade your men to accept a new plan, and a definite check-up in the field may reveal a surprisingly low efficiency of use after some little time.

"A general understanding of the true net profits arising from the intelligent replacement of equipment would undoubtedly stimulate greatly the total purchases of industrial equipment in the years ahead," Mr. Bailey said in concluding. "And finally, the general use of the net profits approach in selling industrial equipment would eventually bring us all to a suitable reward in the form of net profits from our own business."

New Gas Uses Open Vast Field for Coming Year

Opportunities for expansion that lie ahead of the gas industry in New Jersey and the rest of the country have probably never been greater. House heating and air conditioning, now established as practicable and inevitable, open up an amazingly large field. There are more than 3,000 motion picture theatres and nearly all of the regular theatres yet to be air conditioned to say nothing of the 30,000,000 homes in the United States, reports the New Jersey Public Utility Information Committee.

Air conditioning is changing the commercial map of the country. It has brought to Trenton a cigar-making industry that formerly flourished in Cuba. Hotels, office buildings, department and retail stores and restaurants are coming to realize the financial possibilities of manufactured weather and are joining the big parade. In addition to all of this prospective business, there still remains the demand for gas as heat in the electric industry that supplies power for manufacturing.

Industrial Furnaces for Gas

XVIII---Kilns for Heavy Clay Products

LAWRENCE E. BIEMILLER

Supervisor Fuel Sales
Consolidated Gas, Electric Light & Power Company of Baltimore

Scove Kiln Firing Common Brick

KILNS compose a special class of furnaces, operating at high temperatures, and for heavy clay products will be found to be essentially one of the five types here described. The type used for a given operation depends upon a number of factors, such as: the number of units to be fired; the firing load factor; the value of the finished product; the cost of fuel; the value of constant quality; and the relationship of the kiln to material handling problems.

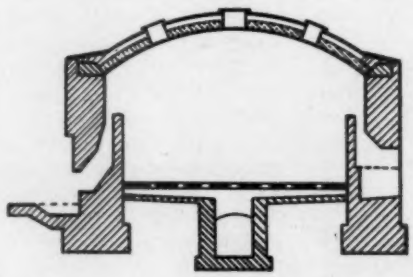
The clay products industry is the second largest industrial user of fuel, and a very important fuel in this industry is gas, particularly natural gas. The quantity of fuel used varies greatly with the type of product fired. It varies for different types of clay products, it varies for bricks of fundamentally different materials, and it even varies greatly for common brick made in different localities.

Scove Kilns

Scove or dutch kilns are characterized by their rectangular and temporary construction. They are built on the ground, out in the open, usually with two permanent end walls, but with side walls and fireboxes which are built anew at each firing. Moist molded bricks are stacked with their four-inch axes vertical, in groups of three for instance, so that the nine-inch axes are at right angles to any adjacent groups of three. These groups are piled to form tiers, usually 30 to 40 feet long, by 15 to 20 feet high, by 3 to 5 feet wide, with a tunnel or arch used for a combustion space located at the bottom of the tier. The arch would be about 30 inches wide and 24 inches high and run the entire length of the tier. Chimneys or flues would be spaced uniformly over the length of the arch. Such a tier would contain 25 to 50 thousand bricks, and a kiln may be built up of six to thirty such tiers. The side walls built up by the ends of such tiers would include one or two courses of fired brick which would be sealed with unburnt clay. The arches would be about five or six feet apart, and in them would be built solid fuel fires, or into them would be fired gas or oil burners. The arches would be closed up sufficiently to prevent excess draft. The photograph herewith shows a number of such arches nearly closed up. The whole kiln thus formed is rectangular in shape. The sizes of these kilns usually vary from 150,000 to 1,000,000 brick.

The exact firing cycle for such kilns varies greatly. The initial heating, at least for the first 24 hours is carefully done with a reduced rate of firing so that all water is expelled with no sudden contraction of the pile of brick. After this the rate of fuel use is greatly increased and held nearly constant throughout the rest of the fire. The maximum temperature reached varies from 1700° to 2000°F. The total firing time varies from 5 to 12 or 14 days for different clays and different fuels. On the completion of firing, the arches are sealed, and the completed brick allowed to cool slowly.

It is in the cost of labor during this firing that there is found a great advantage of gas fuel. Due to not having fuel or ashes to haul, and due to the ease of maintaining the desired temperature cycle, it is possible to cut the labor cost 60 to 75 per cent, when changing from solid to gaseous fuel. Gas should also score heavily in the quality of the resulting brick. In some cases it has been found that bricks are slightly larger when fired with gas. The average coal fired scove kiln does not produce more than 80 or 85 per cent hard brick with the rest two-thirds salmon and one-third culls. Salmon or soft bricks sell for much less than hard brick. With gas it should be possible to cut the soft brick to about five per cent and to almost completely eliminate the culls.



SECTION OF BEEHIVE DOWN DRAFT KILN, LESS STACK

Beside the increase in hard brick, there is also possible with gas an improvement in color, it being possible to obtain a nearly constant color. Uniform shrinkage re-

sults in a more regular brick. With gas the burning time is usually cut two or three days per fire.

The quantity of gas used per thousand bricks varies greatly. Figures as low as 1,400,000 B.t.u. have been obtained where there was some carbon in the clay, and where the trade accepted a relatively soft brick. In the majority of plants the gas consumption would run about 5 or 6 million B.t.u. per thousand brick, in the case of those made from surface clay; and around 10 million B.t.u. for those made from shale.

In the case of scove kilns the gas burner is usually rather crude. Gas is used at a pressure of, for instance, three pounds. In some cases an inspirator is used, and in other cases not. It is not desired to have complete premixture, for the burner must throw a long flame which will reach far out into the arch. A short, hot flame would result in perhaps melting the brick near the burner, before the brick in the center of the kiln had been completely fired.

Scove kilns are used for firing a very large percentage of the common brick produced. Such kilns represent a relatively small investment, and give a quality of firing satisfactory for these brick. The production of common brick is done with a seasonal load factor, which makes this a very attractive class of business for the Gas Industry in a large part of this country. Bricks are produced when building is being done, that is, largely at times other than the several coldest months of the year. Thus it is a class of business which uses gas at a time of the year when the Gas Industry can well supply it, at the lowest possible rates. Gas is used in such quantities that a brick manufacturer is a very desirable customer where the distribution system is of sufficient size. A moderate size plant would use 200,000 cu. ft. of gas per hour.

Down Draft and Up Draft Periodic Kilns

The down draft kiln most frequently encountered in this country is the so-called beehive kiln. This kiln is built in the form of a cylinder with its axis vertical and having an arched top. One size of kiln frequently used has the diameter of the cylinder between 30 and 35 feet, and the height of the cylinder about 7 or 8 feet, and with an additional 7 or 8 feet to the top of the arch. Such a size kiln has a capacity of about 100,000 brick. This same type of kiln is made, having a capacity of between 300,000 and 400,000 brick. The whole kiln structure is permanent, in the case of beehive kilns. Such a down draft kiln is the most efficient and satisfactory of single kilns, yields the most perfect color and lowest fuel cost of intermittent kilns.

When fired with solid fuels these kilns have about 12 fire boxes located equidistantly around the cylindrical wall. When gas fired, the gas burners are usually located in the same places, with the fire box well bricked up. The hot gases rise through a series of pockets, or behind bag walls, toward the top of the kiln, whence they turn downward distributing through the brick in the kiln, and pass out through a center flue in the floor of the kiln. In some cases the kiln floor is solid except for the center flue, and in other cases it has a perforated false bottom feeding to this flue, to give better distribution. When gas is used the bag walls are shorter, and usually closer to the kiln walls. Installations have been made where the gas burners were located at the top of the cylindrical wall. By such arrangement the fire boxes and bag walls can be eliminated, which results in increasing the kiln capacity about 20%. The further development and acceptance of this idea will be very advantageous to gas fuel, as a two-fold saving results. First, there is a saving in the labor of setting the ware, and secondly, there is a great fuel saving. In the usual beehive kiln, about 25 per cent of the heat supplied is necessary to fire the ware and the other 75 per cent is lost due to radiation, heat in kiln setting, etc. If the load in a kiln is increased 20 per cent, this useful heat is increased to 30 per cent, while the 75 per cent loss remains constant. Then the thermal efficiency will be 30 divided by 105, or 28½ per cent, and a 20 per cent increase in output has been obtained for only a 5 per cent increase in fuel usage.

As in the case of scove kilns, the moisture, usually about 17 per cent remaining in the brick after it comes from the drier, must be driven off in the initial firing of beehive kilns. This must be carefully done, and during this period there must be extra openings, usually in the top of the kiln for steam to get out.

Obtaining Proper Color

The red color in the case of brick is due to red iron oxide. To get a desired red color, there must be plenty of air in the kiln in the period after the water has been driven off, so that the red oxide of iron is obtained. It is also necessary that the temperature be correctly maintained, so that all core forming material, such as vegetable matter and carbon, be burnt out before temperatures of vitrifaction are reached. Depending upon the clay, this period may last from 10 hours to 4 or 5 days.

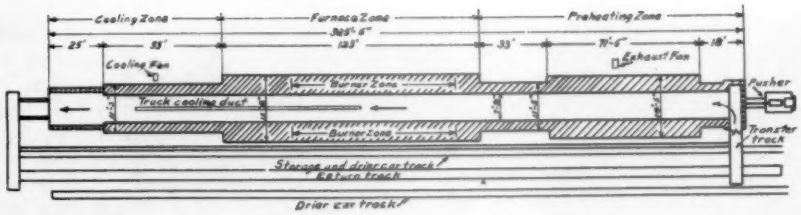
After the completion of this stage of the firing, the temperature can be increased very rapidly until some ingredients of the product melt and bind the others together in a vitrified mass. During this time the kiln is closed up more, as little excess air is required. Then the kiln may be allowed to soak by holding at a high temperature awhile. After this, the kiln is closed tightly and allowed to cool.

Gas has proven very worth while on beehive kilns, as on scove kilns, because of the great saving in labor which results, and the high quality of product. Because these beehive kilns are more expensive than scove kilns to construct, but yield a better product, they are extensively used for firebrick, face brick, hollow tile, sewer pipe, paving brick, and very valuable brick of chrome and magnesia. In the case of chrome brick, it is sometimes necessary to use two silica bricks for each chrome brick, to support the chrome brick in the kiln during firing. For this reason, and because chrome brick is fired to 2700 or 2800° F., it will be found that the fuel consumption per chrome brick will be ten times that for a common brick.

Securing Down Draft in Kilns

The down draft in beehive kilns is sometimes secured by exhaust fans but usually is secured by chimneys of which there will be about two to each kiln. Where beehive kilns are used at a fairly good plant load factor, their waste gases are often utilized to generate steam for drying and other plant uses.

Up draft periodic kilns are very like beehive kilns in their heat application. However, the hot gases instead of being exhausted through the floor of the kiln are exhausted through the arched cap. This is done by building a funnel like shape over the cap of the kiln, with the narrow portion of the funnel forming a stack which exerts a pull all over the area of the cap. This type kiln is used particularly for china and porcelain. Since most objects of these materials could not be piled on top of one another during firing, they are supported in already fired containers called saggers. The problems of firing these kilns are very like those discussed previously for beehive kilns.



PLAN OF TYPICAL TUNNEL KILN

Continuous Kilns—Chamber and Tunnel

Long ago engineers realized that the periodic kiln was very inefficient, thermally, and desired some kind of continuous kiln which would utilize some of the wasted heat. As a result, there developed the continuous chamber kiln, which was used much more extensively in Europe than in this country. A modern chamber kiln consists of an elongated endless tunnel, or ring, consisting of a number of chambers in which the objects to be fired are placed. This ring has a central body of masonry fitted with flues connected to a chimney stack. Flues from this body of masonry connect to each of the chambers, usually running underground to the outside wall of the chambers. Formerly these kilns were built in a circle of twelve chambers, but now they are usually built in a ring of 16 or more chambers, the total capacity of which may be up to 500,000 brick. The kiln is operated so as to have some chambers in each stage of firing at all times. The fire travels steadily forward around the kiln, with the gases passing through a sufficient number of bricks to utilize the greater part of the heat. For example, in a 16 chamber kiln, there might be at a given time, No. 1 chamber empty, Nos. 2 and 3 cooling, Nos. 4 and 5 with firing nearly finished, Nos. 6 to 10 under fire and hot, Nos. 11 to 14 being warmed by waste heat from chambers 4 and 5, and Nos. 15 and 16 being filled.

The popularity of the chamber kiln has fallen off in America with the development of the tunnel kiln. The tunnel kiln is used particularly for the firing of porcelain, pottery, and costly brick of chrome and magnesia. For tunnel kilns, the goods are placed on cars which travel through the kiln and are gradually heated and cooled. Of course, this fits splendidly in a plant designed for advantageous material handling. The quality of product obtained in a tunnel kiln is very high. The disadvantages of a tunnel kiln are the first cost, and the necessity of continuous operation. It takes nearly two weeks to heat up a tunnel kiln, and frequent heating and cooling would greatly shorten its life. This type of kiln does, however, give a very economical fuel consumption.

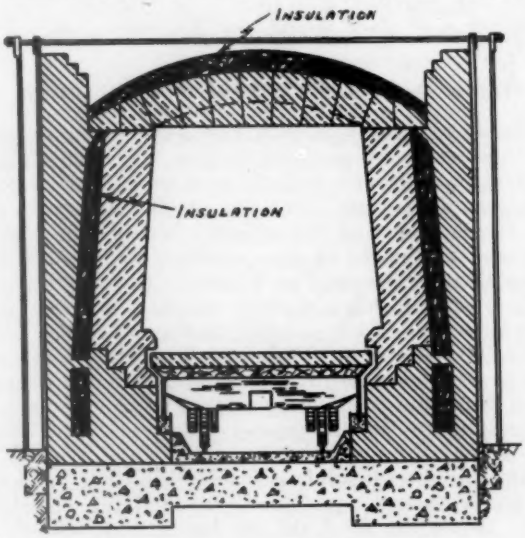
The tunnel kiln wall is very heavily insulated, particularly in the combustion zone. Heat is recovered in the cooling zone and used to preheat the incoming ware, and the air for combustion. Tunnel kilns may be direct, or indirect, depending upon whether the products of combustion would injure the ware. The cars are moved by a hydraulic pusher operating on the last car in the kiln. The cars are sand sealed on the sides, and cooled underneath by forced air, to prevent the bearings freezing.

The car with green ware is brought in one end of the kiln over a transfer track, when the pusher has moved the line of cars toward the exit end sufficiently to leave room for another car to put in at the entrance end. As each new car is brought in, a specific car is pushed down through the various zones of the kiln. The first zone which is normally from 30 to 50 per cent of the kiln length, is a preheating zone in which the ware is brought up to within a few hundred degrees of its firing temperature. For some products, this zone also serves for water smoking. This preheating is done by the gases traveling down through the kiln counter to the direction of car moval, and by hot gases carried in ducts from the heating and cooling zones.

The furnace or firing zone usually is about 25 or 30 per cent of the kiln length. The firing is done, in the case of gas, with from 12 to 20 burners usually, half on each side of the kiln. In most cases these burners fire into fire boxes, more or less suitable for any fuel. It seems probable that these fire boxes could be reduced or eliminated, with resulting increase in thermal efficiency, in tunnel kilns designed more specifically for gas firing.

From the firing zone, the ware is pushed through a cooling zone where it is cooled by radiation losses, by cooling air blown through the ware and then carried to the preheating zone, and by the circulation of air out of wall openings in the cooler end of this zone. Then the car, of ware now nearly at room temperature is removed from the exit end of the kiln.

By the use of exhaust fans, by the use of proper and controlled dampers, and by the use of a number of easily controlled gas burners, it is possible to maintain the desired temperatures in all parts of a tunnel kiln. By so doing, and then controlling the rate of travel of cars through the kiln, it is possible to obtain a very exact time-temperature curve for the material being fired.



CROSS SECTION OF TYPICAL DIRECT FIRED TUNNEL KILN

We look forward to further development of continuous kilns, so as to lessen their first cost, so as to increase their capacity, and so as to permit their being more readily put into and taken out of operation. Whereas, common brick is burnt in a scove kiln with solid fuel in 10 days, and with gas in 7 or 8 days, the same brick would be fired in a tunnel kiln in 61 hours. However, with the present limitation in cross-section of a tunnel kiln, it cannot produce sufficient common brick even with this short firing to permit its very extensive use. With further progress in furnace construction, and gas application, we may see many kilns of the type first discussed replaced by tunnel kilns fired with Industrial Gas.

Appealing To The Feminine Buyer

ALMA FREEBURG

News Bureau, Standard Management and Operating Corporation.

DURING the past several years more and more attention has been given by the country as a whole, and utility companies in particular, to the increasing importance of women as the domestic purchasing agents of the nation. This has led to not only the training of salesmen to direct their appeals to the women, but also changed the general trend of advertising to conform with feminine demands.

A concrete example of the importance of this type of advertising is shown by a check over a month's utility company advertising on the Pacific Coast, which shows 13 out of 16 major advertisements used during that time were written to distinctly attract women readers, while of the remaining three, two were of combination appeal and the third covered brooders which might come under this same heading, although it was primarily designed for the man of the household. Of 20 ads selected during the same period for featuring by one of the advertising mat services, 12 were of unquestionable feminine appeal, three were combination ads, two were masculine and the balance were primarily industrial.

What the Survey Showed

To further aid in this survey, queries were sent to the various new business departments of the coast utility companies, which disclose the fact that in major appliance sales from 50 to 75% are made to women exclusively, and in more than this it is the woman who makes the final decision and signs the contract, after discussing the matter with her husband or some other masculine member of the family. Similar figures indicate that only from 2% to 4% of the sales are made directly to men.

The exceptions to these figures are minor appliance sales, which are made almost entirely to women except during the holiday season, and on the other hand those made to contractors or subdivision promoters, which are most often made to men. These sales, however, are made to meet the demand of women customers, and so her influence is felt even here.

All agree that as the unit price of the appliance rises, both the man and woman of the household must be sold, and the man is not to be neglected in either advertising or sales appeal. However, in the majority of cases, if the woman is thoroughly sold herself, she does the "selling" job to the man, with some assistance from the salesman, and for this reason it is increasingly important that she be kept well informed on the subject, which is best done through advertising media.

These coast figures on utility company sales are in line with general figures recently compiled in other sections of the country. Reliable sources indicate that at least 85% of the total retail merchandise purchased is by women, while this figure is materially increased in certain lines such as food stuffs, household goods, gas and electrical equipment and products of similar nature.

This is a natural outgrowth of present business conditions—or women entering the business field and the additional leisure time afforded through the use of modern household conveniences, in which gas has played no small part, as well as the present easy means of rapid transportation. This has necessarily made some changes in types of successful advertising, even for that which was formerly considered strictly in the masculine field.

Women's Magazines Efforts

A series of articles now being featured by one of the leading women's magazines has carried the heading "It's Up to the Women," which seems to be the general consensus of opinion throughout the country. In these articles, and those of similar nature, women are urged to maintain normal living conditions, to release their money from hoarding, to take advantage of today's prices and modernize their present homes. The results of these campaigns are being told through the press from day to day, and it is important that the gas companies be prepared in advance to take advantage of the funds so released.

With the self-evident importance of reaching this feminine public with our advertising in mind, it is interesting to note some of the appeals which have proven most successful and some of the peculiarities which have developed in this changeable market.

Women have become internationally known as "bargain hunters". Yet it is encouraging to note that in various surveys made throughout the country, price does not rate first in its appeal to women, but stands instead at the foot of the list. It is also worthy of note that "novelty" ranks close to the end, which would seem to indicate that it may be more profitable to spend time finding appliances to better fit the known needs of the household than to develop novelty appliances as attention attractors.

First in its appeal to women usually comes her sense of the romantic and appeal to their vanity. They are more interested in the advantages to be gained through the use of comfort and convenience giving appliances in their homes, which increases their ability to hold or attract their husbands and win the admiration of their families and friends, than they are in the initial cost, economical features or operation of equipment.

Women Demand Quality

Quality also ranks high in the list. After all, women working on even a limited budget demand quality merchandise in the long run and are not content for any period of time with that which is shoddy or inadequate, merely because of price appeal. This should be encouraging to the gas industry, who have suffered immeasurably due to "cheap" appliances which have found their way onto the market and have already caused

some dealers to consider abandoning their campaigns for the sale of quality equipment.

Illustrations have an important place in making an advertisement attractive to feminine readers. In the well known Gallup survey, it was indicated advertisements without illustration attracted 83% less attention than those with illustrations. This same survey also indicates that while men are interested in pictures of the product, women are more favorable to pictures of people, showing the appliance in action and the benefits to be derived from its use, with mention of specific users' experiences with the product.

There is no question but that any successful advertisement must speak the language of the person to whom it is addressed. Women of all classes are interested in their homes and ways and means of making them more attractive. For this reason considerable space in utility advertising has been given to methods of cookery, ways of saving time, food, et cetera. The new model gas equipment represents not only improved methods of operation but distinct style appeal. Women are even yet more inclined to buy style and color, rather than mechanical operation and these have rightfully been given importance by appliance manufacturers and merchandisers.

Women are also the health guardians of the home, and appliance advertising featuring the protection of their families has its place in the gas utility budget.

Now let us turn to the various media by which we may approach our prospects, the principal ones of which are: Newspapers, Magazines, Direct Mail, Billboards, Radio, Street Car Posters, Cooking Schools, Home Service Work, Window Displays and Floor Demonstrations.

Women Prolific Newspaper Readers

Of newspaper advertising, it is estimated that approximately 4% of that used is actually read, 80% of which is read by women. From this it would seem that feminine curiosity is again on top, but nevertheless it calls attention to newspapers as an important media for appliance advertising. The Pacific Coast branch of one of the leading national advertising agencies, advances the theory that afternoon papers are a better means of reaching women than morning papers, due to the fact that the husband quite often reads the morning paper and takes it with him to work, while the majority of afternoon papers are either delivered at home or read on the way home and find their final resting place there. However, many do not agree with this and it is one for investigation in each individual market. Those papers which do carry reliable home service departments are usually more widely read by women than other papers and the placing of attractive appliance advertising in proximity to these departments usually demands attention.

Advancing to the second media mentioned—magazine advertising—we find this field very limited insofar as the individual utility companies are concerned, particularly in the matter of national magazine space. This field has heretofore also been sadly neglected by the gas appliance manufacturers, who have allowed their electrical brothers almost uncontested sway. The proposed campaign now being sponsored by the Appliance Manufacturers' Division of the American Gas Association should do much to make up for lost time here, and some carefully planned tie-in advertisements in local papers by utility companies should see great strides made in building the gas load, even in the face of present business conditions. The women's magazines are universally conceded to have the largest appeal, general magazine advertising admittedly having important coverage but a too large percentage of waste. The home service editors of these magazines are accepted authorities on matters of household management, and with the manufacturers' campaign their attention should be more and more turned to the advantages of gas with its speed and flexibility, which will in turn be reflected in their editorial work.

The recent development of liquefied tank gas has also brought to the gas industry a highly productive rural territory. It is estimated by various retail associations that 30% of the retail buying done in this country is done in the so-called rural or small communities. Here the farm papers and magazines offer another splendid means for appeal to the rural housewife, who is now quite as modern and up to date as her city sisters. One of the liquefied gas companies on the coast has sold a total of more than 200 gas refrigerators during the 1932 summer season, to say nothing of the cooking and water heating equipment placed during the same period.

The Cooking School which has long been popular in the cities, is credited with the major portion of these sales, and are held in the various grange halls, et cetera, which are generally accepted gathering places for farm women.

Trend Toward Individual Demonstration

The regular cooking schools in connection with gas utility home service work are still important. However, at the present time the trend of gas utilities seems to be toward the small group of individual demonstration, rather than the large cooperative school where many products are featured. True, more newspaper space is often devoted to the latter school, but less space, with definite gas appliance facts driven home, will bear better results in the final inning.

Direct Mail, street car posters and radio advertising have also been used to good advantage in reaching the feminine public. They are, however, necessarily supplementary and should be considered as such. Both of the former have considerable waste coverage, the first

in not reaching the proper party due to the flood of such advertising coming into the home, and the latter due to the large commuting crowds who are the major street car passengers and are not classed among those who finally make the decision in appliance purchases.

Tests conducted by the University of Southern California develop the fact that 65% of what the normal person learns is through the eyes and only 25% by hearing. Nevertheless, excellent results are obtained by means of the latter method and the radio is perhaps the most extensively used means of this type of appeal. Such advertising must, as a general rule, be more of an institutional nature than one for the direct sale of specific appliances. Such programs designed for the latter require exceptionally careful consideration to obtain the desired results for the necessarily high expenditures.

The same features which have their appeal to women in newspaper and magazine advertising may be utilized for floor and window display. A certain drug store in the East found that by draping their windows and removing all merchandise for a period of three weeks, they reduced sales approximately 26%. While this figure would probably not hold good in the gas appliance field, such displays do much in obtaining the interest of both young and old, paving the way for actual appliance sales. The right hand window also has a rating of about 5% higher than a left hand window, which indicates that hard to move merchandise should be given right hand display. The same applies to the natural inclination of the majority of people entering a store to turn to the right, if there is no particular appeal placed immediately on the left hand side of the entrance. Women also are more favorably inclined toward going up to look at merchandise, than going down, and for this reason where more than one floor is used, equipment of special appeal to women should be placed on the upper floors.

One field which is of interest to women, but which has not been extensively approached from their standpoint by the utilities is that of financial advertising. Women are estimated at the present time to control more than 40% of the country's wealth, while they are beneficiaries of approximately 80% of the life insurance in force at the present time. They comprise the actual majority of stockholders in some of the largest corporations in America, and women millionaires (pre-depression figures!), as indicated by individual income tax returns, are as numerous as men. Women receive about 70% of the estates left by men and 64% of the estates left by other women! All of which points to the fact that more study could undoubtedly be given this phase of most utility company advertising.

As business conditions improve in general, the purchasing power of women will undoubtedly be more important than ever before. They will be shrewder and less easily led astray. From the facts and figures shown above, it is readily seen that particularly in appliance advertising, the gas utilities need to devote study and thought to putting appeal into their advertising which will meet the every day demands of the average home, which will help solve the problems confronted by the "ordinary woman" and put this appeal into such form as to win her confidence, bringing to her the increased benefits to be derived through the correct use of the proper gas equipment.

Optimism Revealed in Survey

THE survey of general business prospects recently conducted by Roy D. Chapin, Secretary of Commerce, through the medium of forty-four national trade associations disclosed some interesting facts.

Approximately one third of these associations voiced an expectancy of improvement in their lines and in general, the consensus was "that progress has been made in the last year despite the low volume of operations and the lack of profits comparable to recent years.

As regards specific industries, some activities, such as textiles, reported a sharp upward trend in the last half of 1932. Tobacco, auto parts, toys, shoes and synthetic chemicals looked upon the year as fair or favorable. While prices were lower than in 1932, meat packers did as much business in volume of products. Flour milling reported business as only slightly below normal. None of the optimistic reports revealed any anticipation of rapid improvement.

Reports from some of the industries are summarized as follows:

Canners—Some improvement.

Flour millers—Steady.

Shoe and leather trade—Hopeful, but cautious.

Lumber manufacturers—Some improvement.

Furniture manufacturers—One group, an upward trend, another no "great" improvement.

Mineral and metal associations—Doubtful and inclined to await further clarification of outlook.

Machinery and equipment associations—Improvement. These include manufacturers of radios, farm equipment, office equipment and dairy and ice-cream equipment.

Machine tool business—As good as in 1932 and possibly better.

Paper and pulp association—No immediate upturn of important proportions.

Printing industry—Confidence.

Textile industry—Impossible to make definite forecast.

Uses for Stainless Steels

Undoubtedly the best-known and most widely used of the alloy steels are the comparatively large group of chromium and chromium-nickel steels generally called stainless steels. These steels contain from 12 to 20 per cent chromium, with or without additional alloying elements. Of these, the 18 per cent chromium, 8 per cent nickel steel is probably the most widely used at the present time.

Stainless steels are particularly well adapted for use in resisting atmospheric corrosion, attack from oxidizing agents, and scaling at elevated temperatures. Because of their good physical properties and broad range corrosion resistance, they are continually finding new uses in place of ordinary steel and cast iron. These alloy steels are employed in practically every branch of industry; and in certain fields their excellent characteristics have brought them into special prominence. Chief among these are the food and associated industries, petroleum, automotive, chemical, high temperature and pressure, shipbuilding, architecture, aircraft, railroad, paper and hospital fields. Recent surveys indicate that these industries are the major consumers of stainless steels.

Many applications for stainless steel are discussed in detail in a 20-page booklet, "Stainless Steels and Their Uses," issued by Electro Metallurgical Company, 30 East 42nd Street, New York, N. Y. Copies of this booklet will be furnished upon request.

Good Distribution Service to Gas Customers

D. S. MARTIN

Superintendent Distribution, Citizens Gas Company, Indianapolis, Ind.

GOOD distribution service to the customer may be defined as an uninterrupted service, one which will supply sufficient gas for his needs at all hours of the day or night and at any time of the year. This entails certain methods in construction, backed by an intelligent and well trained organization. (Good service will be an inverse ratio of the annoyance a customer suffers.) It is the purpose of this paper to touch on certain matters relative to good service without going into too much detail. It is possible to discuss just a few of the high spots in a paper of this kind.

Starting at the plant, the main system must be laid out large enough to supply the maximum hourly send-out. A study should be made of the community to anticipate the building trend and, if possible lay mains that will supply the needs for a definite period in the future. There must be a definite plan regardless of what kind of a system is involved, whether it be High Pressure or Low Pressure. Until 10 years ago the Gas Company in Indianapolis had no regular plan for developing the Distribution system. Ends were tied in as weak pressure localities developed or a small size high pressure main was extended and a district regulator installed with the result that the mains were frequently too small for feeder mains and had to be replaced with larger sizes.

Mapping Distribution System

One of the first steps in studying the system was to make a skeleton map of the low pressure mains of 6" and larger with all high pressure mains in a different code. The city was divided off into squares of approximately ½ mile with a 6", 8" or 12" main on each side of the square. Not only the old territory was mapped in this but all territory beyond the ends of the mains, so that when an extension is to be made the size can be taken from this map and the system develops properly. Oftentimes a large size main will be fed from a small one when a new territory is developing. Low pressure feeders have been laid where needed and a number of district regulators removed or relocated. A 16" high pressure belt line was designed with 20" connections from the two plants. Part of this belt line had already been laid and will be added to as occasion demands.

Practically all of our distributor mains are 4", except where they happen on the sides of the ½ mile squares. Distributor mains are supplied by feeder mains of 8" or 12" pipe on cross street thoroughfares. Regulators are located at strategic points where large size mains intersect. We find that where territory is laid out in this way that the pressure does not drop to exceed 1" water column. Factory districts require a little more care in the design as the total load may be taken off at one of two services. This requires larger mains than residence territory where the load is from a large number of services.

All mains must be laid to grade with drips in the low points and the depth should be below frost line. This depth will usually prevent damage from heavy traffic. Underground structures such as sewers, conduits, etc., are avoided to prevent settlement and as a further safeguard against settlement, all pipe is side tamped when laid.

Size and Location of Services

Here again the important considerations are size, grade and depth. Calculations might show a ¾" or 1" service to be large enough to supply all present needs but in the course of time accumulations of rust, napthalene, dust or other foreign material will cut down the capacity so that the required amount of gas cannot be supplied. It is therefore advisable to install a minimum size of 1¼" pipe and minimize complaints. The only difference in the cost of installation is in the cost of pipe; digging, back-filling and fitting being about the same. Incidentally there should be full opening at the main and a suitable opening on the premises so that the service may be blown out.

Care must be exercised by the service foreman in locating the service and meter so that the pipe will not be in a sewer or water ditch where it may trap and the meter will not be exposed to extremes of temperature. The first thing the foreman does when he comes to make an installation of service is to see some responsible party and pick a suitable meter location as well as ascertain for what gas will be used. The size of service is then determined, depending on estimated consumption and length. Service pipe under sod does not need to be as deep as in exposed places to prevent freezing but the depth should be around 2' and graded back to the main.

The meter is located in a light part of the basement near a window if possible and at least 10' away from the front of the furnace and as near as possible where the service enters the basement. In case there is no basement a location is selected on the wall in the kitchen. Under no consideration should the service be exposed under buildings without foundations or through open areaways. Forethought in selecting the proper meter location will prevent many complaints due to freezing, naphthalene and drying out of meter dia-

Presented before Indiana Gas Ass'n. Convention, French Lick, Ind., Oct. 4-5, 1932.

phragms. It is usually a simple matter to determine the proper size of meter. The tendency in apartment buildings where a large number of families are supplied from one or two meters in tandem is to install meters of too large capacity.

Suggestions as to Houselines

Houselines are a source of many complaints usually due to small size, trapped or frozen lines. Size is one source of argument with some plumbers and householders but it is well worth the effort to have the piping right. Every Gas Company should have a set of written rules covering the installation of house piping and should stick to them.

If the foregoing suggestions are followed, complaints on the customers' part will be reduced to a minimum, however there will be some cases of trouble show up regardless of how well we have planned. These complaints may be due to a change in the gravity of the gas over which we have no control, dirt in old mains, naphthalene, freezing, stuck meters, trapped pipe, leaks, etc.

To keep in touch with developments a pressure survey of the entire system must be made at least once a year, preferably during the time of maximum send out. The best method is by means of portable gauges that are set in territory picked from the map and in localities where complaints of insufficient gas are received. A study of these charts with the map usually suggests the remedy. The regular daily charts from fixed locations will show up major troubles such as stoppages in feeder lines or defective regulators.

An additional check is made on district regulators by means of a recording gauge and connecting mechanism to determine how much the regulator is opening.

Equipment for Handling Work

To execute the items mentioned in the foregoing requires a central headquarters equipped with office space, storeroom, meter shop and garage. The clerical force will handle the details of receiving and issuing materials as well as all records. As to the records, they should be such that locations of mains, services, drips, etc., are quickly available in case of emergency.

It is unnecessary to say that the handling and repairing of meters must be done thoroughly if the customer is to be spared annoyances of leaks, stuck meters, incorrect registration, etc. This work is not so much a matter of equipment as it is of skilled employees under intelligent direction.

Setting and removing meters, also serving complaints on the customers' premises requires light trucks with meter racks, bell pump and small tools. Approximately one meter truck to 6000 meters in service is an average requirement for normal times. Meter trucks should have padded racks to hold meters from bouncing around. Any light truck with good riding qualities will do.

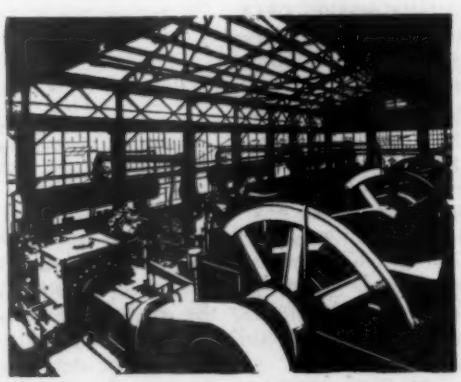
Service work requires a heavier truck such as 1½ ton. Tool and fitting boxes may be built in and racks arranged to haul pipe for a day's work. This truck also transports the men and this makes a mobile and independent unit that can operate over a wide radius. Main work is better handled from trailer tool wagons and heavy trucks. Emergency street repair work requires the same equipment as service work. Portable air compressors are a great aid in cutting pavements and walls and in clearing stoppages in services. Ditching machines, drip trucks and small concrete mixers are valuable additions to the equipment where the size of the company warrants.

All the equipment requires garage space for storing and repairing. Provision must be made for regular inspection, repair and painting. Well maintained equipment gives the customer a feeling of confidence and the employee a feeling of pride.

Distribution Personnel

Our equipment and labor force should make it possible to install a main on a street within a week after the order is issued. A main gang consisting of a nucleus of foreman, fitter and several helpers makes it possible to expand according to the volume of the work by adding common labor. A service gang consists of a similar organization of foreman, fitter, and possibly a helper, laborers being added as needed. It should be possible to install service the day after making contract. Installing meter and turning on the gas should be done as a regular thing on a half day notice, whether on a new installation or a reset. Complaints on the customers premises must be handled most promptly of all as this may be an interruption of service. Every such complaint should be attended to within two hours.

The most important requisite for good distribution service is a well trained employee organization. The Distribution Department has direct contact with the public and for that reason its employees must make a good appearance and have the qualities of tact and intelligence. It is best to try out a new man for at least a year to learn his characteristics and train him before giving him a position of responsibility. Before a man can become a meter setter he serves as a helper for at least six months. Likewise the foremen and fitters are advanced from the ranks rather than hiring them for the job. Make it possible for the man in the ranks to offer suggestions; he is in a position to know details that his superior may pass over. After all there is no better asset to a company than an organization of loyal courteous, and well trained employees.



Notes on High Pressure Gas Distribution

Service Clamps, Fittings and Cocks—DISTRIBUTION ENGINEER *reviews the various types, their special applicabilities and characteristics.*

Service Clamps

A SERVICE clamp or saddle is a mechanical device for connecting main and service and whose purpose is to provide sufficient threads for the first service fitting. The thickness of the main wall of steel or wrought iron pipe is seldom sufficient to allow six full threads, which number is necessary for strength and sealing; this is provided in a clamp by casting a thick top section. The gas seal at the main is secured by a gasket instead of threads. There are three essential parts of a clamp: the gasket, which is used as a sealing medium; the top section, which fits against the gasket and provides means for attaching the service; and the bottom section which grips the main and holds the top section in place.

Fig. 1—Solid Clamp. A—Top section. B—Bottom section. C—Gasket. Note on top and bottom sections, braces cast integral with clamp for stiffening.

General Considerations of Service Clamps—Each type of clamp has a different method of fastening the gasket to the top section; this should be checked previous to installation to determine whether the fastenings grip properly and the gasket fits snugly against the body of the clamp. Grooves are provided in the top of the clamp for the gaskets to prevent their sliding. When the manufacturers ship the gaskets attached to the clamps they should be carefully examined for damage in transit, storing or handling, as a very fine cut across the face of the gasket would result in leakage.

Surface Contact Preferable

The design of the bottom or gripping section of a clamp must provide for surface rather than line contact. This prevents slipping and lessens the possibility of crushing a badly corroded main. Where this section consists of bolts bent to fit the circumference of the main, the round cross section should be flattened for the maximum distance possible to provide the greatest area of surface against the main. Where the bottom section is a solid casting, the whole section should not be relied upon to provide proper gripping but at least two raised strips should be cast integral with the body. The desired threads must be specified when ordering clamps to be used with corporation cocks, as the latter have various thread standards.

Before placing the clamp at the proposed location of the gasket, the main should be both scraped and thoroughly wire brushed, not only to remove all foreign matter, rust and any coating which might have been used, but to disclose deep pits which would make a permanently tight joint impossible. Where the main has deep or numerous pits, a different location for the clamp should be selected, as it is difficult to force the lead or gasket material into a pit. The bottom of the main also should be similarly cleaned to provide an even bearing surface for the bottom section of the clamp, as foreign matter allowed to remain between may be gradually compressed by the clamp, resulting in failure of the seal. For the same reasons, during installation, the bottom section of the clamp should be kept clean of all foreign matter.

The use of any type of clamp has several disadvantages. Without using slip couplings, unions or long screws the service must start at the clamp, consequently lengthening the installation time as previously mentioned. Hard gaskets require an impractical amount of compression to provide a gas tight joint under conditions existent at a service clamp. Rubber compounds while ideal for installation purposes, fail because they cannot be totally confined.

Objections to Lead Gasket Material

Lead is the most common gasket material and is one of the most critical parts of a service. The lack of resiliency in lead often results in a leak, as lead will not expand to fill any increased distance between main and clamp caused by movement of the clamp from reasons such as elongation of the straps, exceeding the yield point of the bolts or straps, insufficient tightening of the bolts when installing and relative movement between service and main. It has been found that any foreign material, such as a piece of rust lying across the gasket, may give an initially tight joint but eventually may develop a leak. Any external continuous or intermittent stress imposed on a clamp would cause gradual added compression of the gasket which may result in failure of the seal between main or clamp and gasket.

Fig. 2—Double Strap Clamp. A—Top section. B—Bottom section. C—Gasket. Note wings on gasket for fastening to top section.

The use of clamps promotes galvanic action, as demonstrated by steel mains found in fair condition, but the malleable part of the main clamp found to be completely destroyed where brass corporation cocks were used. The necessary use of a bolt, generally steel, increases the number of dissimilar metals to be con-

sidered. From their odd shape the stocking of clamps requires considerable room. Stock records are increased since clamps are generally carried disjointly, individual parts often being required. All of these disadvantages have been recognized on clamps removed from service during reconstruction of old lines.

Single Strap Service Clamps—The first step in the evolution of clamps was the single strap type. This type has only two nuts diametrically opposite each other, producing a simple method of attaching the clamp to the main. However, it is difficult to insure even compression of the gasket which though firmly held in the immediate vicinity of the two nuts, on the sides ninety degrees away from the two nuts the clamp can move with a rocking action resulting in frequent leaks at these two points.

Fig. 3—Single Strap Clamp with Corporation Cock.

The ease with which a single strap clamp can be made to move is demonstrated by installing one on a pipe in the usual manner, then first striking the top section, then the bottom of the strap parallel with the pipe. With a single strap it is difficult to judge the proper amount of tension on the bolt, sometimes resulting in stripping the threads and exceeding the yield point of the strap in the desire to prevent leakage.

When installing this or any other type of strap clamp it is important to have the straps tight against the main and centered in the bolt holes of the top section so as to avoid angularity between the top section and strap. Should the angle of clamp to strap be other than ninety degrees during installation and testing, the joint would be tight, but would fail as the strap assumed the proper angle from any movement of main or service.

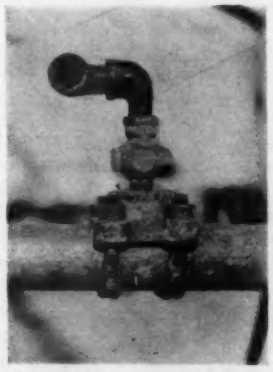


Fig. 4—Double Strap Clamp with Corporation Cock and fittings in place. Note surface contact of bottom section provided by flattening bolts.

Double Strap Service Clamps—A double strap clamp, as its name signifies, has two straps—one on each end of the top section—which allow more uniform distribution of pressure on the gasket, provided the nuts are uniformly made up, by placing tension at four points in place of two as on the single strap. The grip of this type on the main is sufficient to minimize movement of the gasket due to movement of service or main, as is evidenced by considerably fewer leaks than with single straps.

More skill and intelligence is required during installation to secure an initially tight joint with this type because it is necessary to tighten the four nuts uniformly and equalize the tension on the two straps so as not to cause irregular deformation of the gasket. It is common to find the gaskets of double strap clamps, when removed, with two to three times the sealing surface on one side as on the opposite, although the seal remains effective. There is considerably less stripping of threads or stressing the straps beyond their yield point on this type, as an equivalent seal is obtained with half the tension on each strap compared with a single strap type; this fact is one of the few theoretical points quickly and clearly recognized by the average fitter.

Solid Service Clamps—The design of a solid clamp was an attempt to combine the advantages of both the double and single strap clamps by using one nut and hinging the opposite side. It is the most quickly installed of all types, as the hinge on one side holds the clamp together, leaving one hand to hold the bolt side in position while placing the single bolt and nut with the other hand. In other types it is necessary to use both hands on the strap. The nut can be placed on the bottom or top section, but preferably should be on top for greater convenience in placing and using a wrench.

Fig. 5—Solid Clamp with Corporation Cock in place.

Due to even distribution of pressure on the gasket, by reason of only a single bolt being used and a wide hinge on the opposite side, this type of clamp results in more uniform and greater width of sealing surface of the gasket, at the same time providing a maximum of stiffness and resistance to movement when properly installed.

Problem of Distorted Mains

It is difficult to saddle elliptical mains, because the saddle constructed of cast material, cannot be made to conform to the periphery of the main as readily as the flexible steel or wrought iron straps in other types. Only a small amount of clearance is provided between the main and clamp in the design of the solid type thus providing an extra safeguard against movement but resulting in a slight added installation difficulty.

On mains three inches in diameter or less of standard or lightweight pipe, it is possible by hammering on the clamp to force the pipe into shape and install the clamp. On larger sizes it is necessary to sledge the pipe itself before installing the clamp. The elliptical shape of pipe ordinarily comes from cold bending and transportation, unloading or accidental blows and is more common in large sizes than small, especi-

ally where uncommon methods of manufacture are used.

Care must be exercised on installation to provide uniform contact between main and bottom section of the clamp, to guard against any possible future change of distance between any part of the bottom section and main or movement of the saddle. A safeguard in this respect consists in striking the bottom section with a hammer after putting tension on the bolt to provide better gripping of main by clamp. As the tension on the bolt becomes greater, the top of the clamp should be forcefully hammered to assist proper seating of the gasket. A much larger bolt must be used than on the strap type.

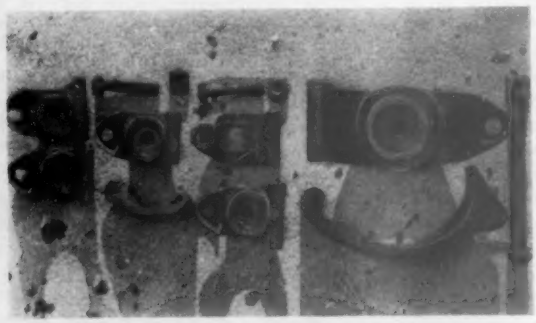


Fig. 6—Solid Clamps removed from actual service. Note wide sealing surface on gaskets and raised strips on bottom section.

It is common when first using solid clamps to strip the threads or break the bolt in the desire to make a tight joint. More uniform seating of the gasket and better gripping of the main results on development of skill. Experience must be depended upon to judge the proper strain on the bolt sufficient to give the necessary seal on the gasket without causing failure of the bolt from threads, stripping or fracture. An effective way to develop quickly the necessary experience is by having the proposed installer attach a clamp on a pipe and noting in particular the amount of pull on the wrench and, as a check, the clearance between main and top of the clamp, also the penetration of the bolt beyond the top of the nut, then removing the clamp and repeating the performance until the desired width of seal is secured on the gasket on each of at least four or five successive tests. The advantages derived from the use of this clamp outweigh the more difficult educational work.

Strength of the hinge is a point naturally raised as a possible weakness, but proper casting and heat treatment result in uniform contact between both parts of the hinge. The small amount of breakage at the hinge has been due to careless installers allowing angularity between the top and bottom section, so that contact between the hinges is a point instead of a line. Foreign matter between bottom section and main or in the hinges must be removed, as it may result in breakage or in loosening of the gasket by being gradually crushed.

Split Clamp Service Connection—The most costly method of attaching the service to a main is the split clamp which is similar to a slip coupling, except that it is split in two. The splitting of both clamp and gasket adds to the difficulties of installation and securing for both an initially and permanently tight joint. This clamp is identical to a split leak clamp, except that it has a tapping in the middle for the service.

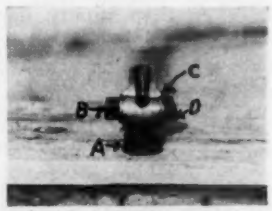
Slip Coupling Tee Connection—A recent development in service connection which is more common on low pressure, is welding a nipple onto the main and connecting a tee to the nipple and service by means of slip coupling connections on each leg. This type is costly and the many variable elements deviate from simplification. Where a corporation cock is insisted upon, the tee may be replaced or preceded by a plug or iron-body cock designed so that the body of the cock takes the place of the barrel of a slip coupling; the two ends of the cock are of standard slip coupling types.

Fittings—Where all screw joints are used, fittings are necessary to connect main clamp and service. The most common method, offering tee connection advantages mentioned under welded tees, is following the clamp or corporation cock with a street tee, then a street ell connected on the bullhead of the tee. Figure 4 illustrates a series of fittings often used. The tendency of downward movement in services influences the direction that the tee and street ell should face which should be such that this downward movement will tend to tighten the joint between street ell and tee. This is accomplished when the bullhead of the tee is on the left when standing over the service and facing the main.

The weakening effect of threads requires the use of a semi-swing joint at the main connection. To avoid additional joints, some prefer to use two street ells instead of a tee and street ell. These designs allow a certain freedom in angularity and movement between the service and the main.

Dissimilar metals should be avoided on a service, as it has been noted in numerous instances that failure occurred on galvanized fittings and main clamp from pitting, while the uncoated steel pipe was still in good condition. It will be noted in Figure 8 that there is a large hole in the center of the first street ell and that near the male end of this ell the pipe wall was so thin that it broke off. At this same location the galvanized cast iron main clamp had been corroded through although the uncoated steel service pipe and main remained tight. This again emphasizes that the use of dissimilar materials should be avoided.

Fig. 7—Brass Corporation Cock. A—Body. B—Core. C—Washer. D—Lock nut. Note full roundway opening in core.



Corporation Cocks—A corporation cock is a male and female shut off placed in the service clamp to eliminate the necessity of both removing the tapping machine and completing the remainder of the service under pressure. Its value as an emergency shut off is small, since no valve box is placed over it. The brass corporation cock is the weakest link on a service, not only because of its mechanical weakness, but it is also difficult to prevent leakage around the bottom and top of the core. After its final opening, the set nut should be tightened as much as possible without damage, assisted by slightly tapping the head or slightly turning the core of the plug to minimize possible leakage between core and body.

Whenever a wrench is placed on a corporation or any other brass cock, it must always be placed as near as possible to the end being made up to prevent straining of the body. On installing a corporation cock, the wrench must be placed directly on the body which will

be deformed by any excessive strain to the extent of causing leaks, or gas will by-pass when the core is in a shut-off position. To avoid deformation a wrench should not be used on the female end before connecting the pipe. A half inch cock is commonly used on ¾" services followed by a ½" x ¾" street tee or street ell. A near-full size gas-way in the cock as possible should be used to allow plenty of room for the drill and shavings from drilling and also to secure the advantages noted under large diameter taps.

Fig. 8—Corrosion of galvanized Street Ells used in conjunction with brass Corporation Cock.

Curb Cocks—Brass—The first type of curb cock used was standard brass, followed by extra heavy brass. Experience in leak prevention on brass curb cocks has dictated the necessity of tightening the lock nut to the extent that turning of the core is difficult and often impossible. Few of these cocks can be turned by inserting a key in the box, it being necessary to dig up, loosen the lock nut, and tap the bottom of the core before turning. Should the core be forced with a key or wrench there is likelihood of breaking off the bolt holding the bottom washer and lock nut. The precaution of tightening the nut minimizes the likelihood of a leak occurring

Even in extra heavy brass cocks, the slight damage that may occur in transit or construction will alter the shape of the body and make a tight shut off impossible, and often causes leakage between core and body. Under high pressure conditions brass cocks have not proved practical, although under test conditions they may meet specifications. When installing any brass cocks, the wrench should always be kept on the side of the thread being made up, to avoid straining the body.

Curb Cocks: Iron Body-Brass Core—A decided advancement in cock design was the use of iron bodies with brass cores, which retained the cheapness of solid brass, and increased the structural strength; further, the threaded ends retain their shape against strains that would render brass bodies cocks unusable. However, the frequency of porous bodies warrants the added expense of an immersion test with air pressure.

Fig. 9—A—Extra heavy brass Curb Cock. B—Standard brass Curb Cock. C—Full opening Curb Cock plugged with gums. D—Plug with full roundway opening. E—Body of Curb Cock. F—Washer.

To overcome the binding common in both brass to brass and brass to iron cocks, one manufacturer has produced what he terms an aged and regreased cock. By ageing after greasing under pressure, it is contended that a thin section on the surface of the metal becomes impregnated with oil sufficient to keep the surfaces lubricated for an indefinite period. This method does not overcome the leakage possibilities inherent in this type of cock.

Another design provides lubricant storage and channels similar to a lubricated cock, but with no method for exerting pressure on the lubricant. Experience has shown that this design does not overcome the ordinary leakage possibilities and adds the additional one due to the standard pipe plug used in the head.

Lubricated Plug Cocks—The inability to secure any type of brass or brass and iron cock which combined tightness with ease of operation, led to the development of lubricated plug cocks. A lubricated plug cock is one having a channel down through the tee head into a well in the top part of the core, from which channels lead to the periphery of the core and contact with grooves in core or body or both, through all of which a lubricant may be forced for the purpose of ease in operation and prevention of leakage and by-passing when in a shut off position. The lubricant also has a value as a protection against internal corrosion when necessary.

The core may be beveled or barrel type. In the barrel type, opposite walls of the core and inside of the body are parallel. In the bevel type, the core is the frustrum of a cone and will be termed standard, when the wide part is on top and inverted, when the narrow part is on top. The inverted design provides little sealing surface at the bottom of the plug, resulting in easy leakage of gas into the bottom chamber where it is sealed off from the exterior of the cock only by a plug with screw threads.

Fig. 10—Lubricated Plug Cocks. A—Complete cock with spring washer and castellated lock nut. B—Body. C—Castellated locknut. D—Plug showing lubricating channels. E—Cock with square head and brass stop. F—Cock with cotter pin projecting beyond lock nut.

To cut down weight and size, this plug is usually made with only three or four threads, which is not sufficient insurance against leakage. The coil spring used to keep the core of an inverted cock against its seat, allows considerable movement of the core, which movement may be caused by the placing and using of a key or wrench. It requires only from fifty to one hundred pounds of weight on top of the core to produce leakage.

Barrel Type Dependent on Lubrication for Tightness

The barrel type depends on accurate machining to provide uniform but not excessive clearance between core and body, and for this reason is more dependent on the lubricant for a complete seal. After long disuse any type will offer resistance to turning, which requires more lubricant to overcome in the barrel type. In the manufacture of beveled core cocks, each core is lapped or ground-in as accurately as though it were

to be used without lubrication; over emphasis should not be placed on the value of lubricant as a permanent seal.

Most lubricated plug cocks are designed with some type of spring to keep the core seated, the spring usually being of the coil type but the most satisfactory is a flat washer of spring metal held in place and securing spring action from the lock nut. A coil spring allows considerable movement of the core, which movement is often sufficient to allow gas to leak past the core and any foreign matter carried along may lodge between core and body, preventing proper reseating.

A washer type spring correctly installed does not allow enough movement of the core to cause leakage and maintains an even pressure on the core at all times. The correct tension on the washer spring is secured by a nut on a threaded lug projecting through the washer and integral with the core.

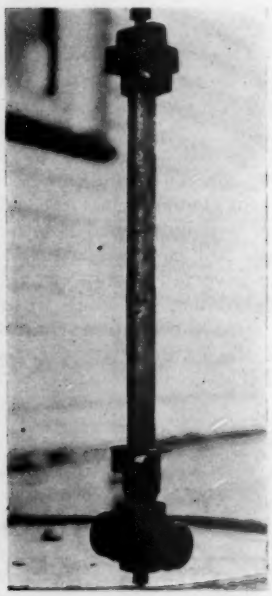


Fig. 11—Method of extending Lubricating Channel to a point near the surface of the ground.

A slight movement of the nut has considerable effect on the washer spring tension, so that all adjustment of the lock nut should be made by the manufacturer and not disturbed by the field crew. To discourage tampering, the lock nut should be other than standard nut design, preferably a castellated cylinder which can be easily keyed into the bolt and the key upset so that it cannot be driven out without leaving a visible sign of tampering. The key when in place, should be flush with the outside of the lock nut. The use of a cotter pin should be avoided in curb cocks, as in turning the cock, it may be sheared off, allowing the lock nut to back off.

Ordinarily, lubricated cocks do not have stops. The value of a stop on shut-offs depends entirely on the employee's experience. One who has always relied on the stop to indicate when a cock is completely on or off will often find that the stop can not be depended on, because when the stop design is external, there is liklihood of foreign material getting between the two jambs, where one jamb is a brass pin, it is easily sheared off.

As previously stated, non-porous cast bodies are difficult to obtain. Hence, lubricated cocks should be factory tested for porosity—preferably before lubricant or core is inserted. Where this is not possible, at least an air test under water of every completed cock should be made.

Full Openings of Cores Needed for High Pressure

For high pressure work, cores should have full openings for the same reasons given as advantageous for large taps in mains. It is seldom that the opening has the full area of the size of pipe on which it is used, but this is not a disadvantage on high pressure work where a few inches differential is not of importance.

When coating the main, especially when using enamel coatings, the shut-off should be avoided, as it interferes with operation.

In the beveled core cocks, there is a slight advantage in the vertical component of the lubricant pressure forcing the core off of its seat sufficiently to provide greater ease in operation. While the term cock has been applied to all sizes of lubricated types, it will be limited in this discussion to those used only on services and similar in design to the brass and brass core-iron bodies cocks, except for the lubricating principle. The lubricant used, in a measure replaces the stuffing boxes or mechanical packings used in ordinary type valves.

Packing is used to provide a gas-proof seal where the machining of the metal parts to accomplish the same results would be impractical. Lubricant offers a much simpler means of providing tightness and for this reason it is preferable to have a lubricant channel around both the top and bottom of the core or in the body of the cock at the same location.

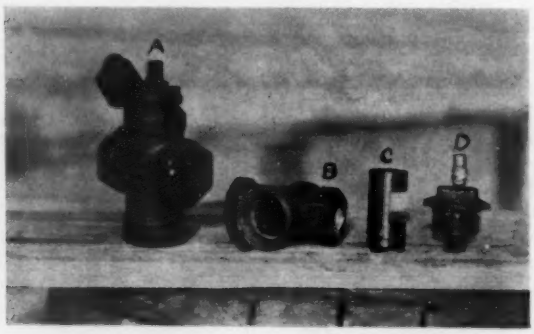


Fig. 12—Barrel Type Cocks. A—With grease cup lubrication. B—Body. Note set screw top. C—Core. D—Tee Head and Plug.

The majority of lubricated cocks are designed without the use of check valves to prevent the escape of gas when the lubricant screw is removed. This is not ordinarily a disadvantage, as the cocks are not used on excessively high pressures and, up to the maximum pressure for which they are designed, they can safely be lubricated with the core in any position.

During the lubrication of the cock the core should be in such a position that no lubricant channels are exposed to the gas-way or the lubricant will be fed into the gas-way defeating its real purpose.

The use of lubricant for sealing purposes only is to be avoided, as the core turns so easily that screwing up on the lubricant screw or fastening on the lubricant gun may turn the core into an undesirable, if not unsafe position. In barrel type designs this is commonly a disadvantage, as the clearance between core and body provides little friction.

In the selection of curb cocks, and in some cases meter cocks, the standard wrench or key used for turning on or off must be considered, as no attempt has

been made to standardize the tee head. A number employ a square head while others design with the more common tee head.

Wet Conditions and Lubrication

The type of lubricant depends on the service to which the cock is subjected. The extreme wet conditions found on the riser pipes of drips offers the most difficult place for which to select a lubricant, while the extreme dry conditions of dehydrated and natural gas allow of more variety. Without lubrication, these cocks are subject to the same possibilities of by-passing found in ordinary cocks and so must be kept lubricated. How often this is required depends on pressure, nature of the gas, design of cock and how well lubricated it remains when left in a turned-off position.

Cocks properly lubricated have been found perfectly tight three years after shutting off, with pressure against the cock changing periodically from thirty pounds minimum to seventy pounds maximum. Utilities using this type of cock have not found it necessary to institute any program of periodic inspection and lubrication.

In place of a lubricant screw, some companies use a connection requiring a force pump such as is used for the lubrication of automobiles. The only advantage claimed is easier lubrication resulting from the operation being performed above ground. However, there remains the difficulty of attaching the tube to the device on the cock and keeping out foreign matter. With the use of lubricated cocks or valves the excess use of lubricant should be avoided, as it will accumulate inside the cock and be carried along by the gas. With the use of a gun for lubrication there is a tendency to use more lubricant than with the screw.

Depending on the particular design in cocks, it is not necessary to give the lubricant screw more than a quarter to a half turn, after turning as much as possible by hand, for proper lubrication. Where services are installed with considerable cover, it is not difficult to either reach down or use some mechanical means for turning the lubricant screw. If the lubrication is for the purpose of ease in opening, the turn-on should be made immediately after lubricating, as the spring will quickly reseat the core.

An attempt should be made to turn on the cock without lubricating and if it binds, lubrication should be sufficient to secure the desired ease of turning. When a cock is to be shut off, it should first be lubricated and partly closed and opened several times to provide uniform lubrication over the core and body surfaces. This opening and closing should not be great enough to allow the pressure of the lubricant to be released, which occurs when a lubricant channel comes into contact with the gas-way.

(Continued in February issue)

Notes on Tetralin

TETRALIN or tetra-hydro-naphthalene has been mentioned before in these columns.* It was used extensively during the war in Germany as a constituent of motor fuels and as a turpentine substitute. The hydrogenation of naphthalene transforms it into a liquid, Tetralin, making possible the disposal of huge stocks of naphthalene then available in Germany. Since 1919, Tetralin has been used more and more in the gas industry and recently a typical analysis of city gas published in Germany had a figure for Tetralin; this shows how extensive its use is.

Tetralin functions as a remover of accumulated tarry, naphthalene and gummy deposits in the mains and used continuously, prevents their accumulation and inhibits the formation of gums as well. As a consequence of the use of Tetralin, troubles at small burner tips and other pipe constrictions are avoided.

The action of Tetralin can be easily explained.

Let us consider one million cubic feet of gas naphthalene saturated at 73°F or containing 34.8 lbs. of it; cooled in the mains to 32°F this same amount still saturated, contains only 3.4 lbs. of naphthalene vapor and leaves in the main 31.4 lbs. of solid naphthalene. By sending through the same mains a second million cubic feet of gas at 73°F after naphthalene removal by proper scrubbing with Tetralin and therefore also Tetralin vapor saturated, this second million cubic feet of gas will resaturate itself at 32°F and carry with it 3.4 lbs. of naphthalene vapor when cooled at 32°F.

Besides, through this same cycle, the Tetralin vapor saturated gas at 73°F will let condense during the cooling to 32°F an amount of liquid Tetralin which will dissolve 5 lbs. of solid naphthalene at that temperature. Through these two actions, the first amount of naphthalene will be reduced to 23 lbs. and it will suffice to send three million cubic feet of gas free from naphthalene through scrubbing with Tetralin at 73°F and normally cooled to 32°F, to remove entirely the deposits left by the first million cubic feet of untreated gas. Incidentally, the naphthalene solution in Tetralin will be removed from the drip pots for naphthalene recovery.

Although this reasoning is somewhat speculative, and does not take contraction in consideration, the old deposits are removed and new ones prevented from accumulating by this procedure.

Most of the manufactured gas contains less naphthalene than the amount corresponding to saturation at 73°F and will seldom be cooled as low as 32°F, therefore it will take many more than three times the volume of treated gas to remove the deposits from the original volume of untreated gas and the consumption of Tetralin carried by the gas as a necessary vapor will be only between one and two gallons per million cubic feet.

Condensed Tetralin will coat the inside of mains and pipes, thereby preventing corrosion; it will also prevent the drying of meter surfaces, avoid the detrimental influence of light oils on meter diaphragms and maintain meter accuracy over long periods.

Prevention of burner tip troubles by Tetralin treatment is especially due to its high solvent power for naphthalene and gums, as by cooling, they condense together in droplets instead of in troublesome solid particles in the absence of Tetralin.

Tetralin is now available in the U. S. A. at prices which will permit its use in the industry and arrangements have been made to have scrubbing and fogging equipment designed for the purpose built here.

Experts in this field recommend if not a continuous application, at least applications at such intervals found proper by practice to avoid all naphthalene and gum troubles. —*Prosper E. Cholet, Chemical Engineer*

* *See American Gas Journal, December, 1930, pp. 39-41.*

Enlisting Employees' Efforts

JOHN H. HARTOG

Sales Manager, Portland Gas & Coke Company

ANSWERING your request for details of how our company manages to stir up interest among its general employees, to be alert for prospects, I can give you the following highlights:

The idea of procuring new business through general employees was adopted by the Portland Gas & Coke Company of Portland, Oregon, in 1929. At that time it was confined to a three months' campaign. The results were encouraging and the following year a similar campaign was arranged, which again produced very satisfactory results.

In 1931 however, it was decided to handle the matter more aggressively and contact all employees by holding meetings both at the Works, at the Shop and in the offices. The necessity of everybody looking around for opportunities to place gas appliances and being familiar with the prices and advantages of modern gas appliances was impressed upon them and their interest aroused.

It was found however, that these periodical meetings could not maintain the necessary enthusiasm at fever heat and it became quite evident, in order to keep up the enthusiasm, it would be necessary to have someone especially trained to continually contact the employees and keep them stirred up to continuous, instead of spasmodic, action.

Permanent Organization Set Up

The decrease in appliance sales caused by the general depression, led the management to set up a permanent organization for this purpose, which commenced to function April 1st, 1932.

The organization was:

First, that due to the nature of our business and the necessity of having trained salesmen close all orders, the campaign would be a prospect campaign in which the employees would furnish the name, address and description of equipment in which party was interested. That they would receive 2% commission on net amount of sale for a prospect tip—that is to say, a "tip" would be a prospect where the employee had not actually contacted the party they were reporting, but had heard indirectly through a friend or otherwise that they anticipated the purchase of gas equipment or gas service. That 3% commission would be paid on the net amount of all sales resulting from employees' prospects where the employee had actually contacted the prospect turned in and talked up the appliance which was sold the customer on their prospect.

As there were 776 eligible employees, we set them in 14 individual teams confined to their own respective departments. To each team was assigned a captain and a lieutenant. A Captains' Committee and secretary were selected by the captains and lieutenants so that any matters pertaining to grievances, disallowed credit on prospects turned in, duplication of prospects, change in rules of campaign, adjustments, etc. might be submitted to them and they in turn make their recommendations to myself as director of the campaign. (This committee has proven most valuable and satisfactory in the settling of employees' grievances, as the employees feel they represent them rather than the company.)

Bogies are set up and assigned each team based upon point credit, which is allowed on the sale of specified merchandise: 2 points for a range, 3 points for an automatic waterheater. In other words, the company can set the amount of points to be allowed, based upon the article's value as a gas load-builder. The approximate amount of money these points would result in, together with the minimum and maximum bogie and the additional prize money (this is figured at 75c per point—in other words, if your bogie was 325, figured at 75c a point, the prize money would be $244.00 over attached pamphlet) rules, regulations and operation of campaign, are submitted to the Captains' Committee, who in turn, judge on the results of past campaigns and opportunity afforded the various groups of employees to secure prospects in their daily work (that is to say, that an employee whose duties are to contact the public every day in his work would have a greater opportunity than the man whose duties are confined to production of gas, etc., etc.).

Campaign Is Continuous

The campaign is continuous, but is set up in four periods of 3 months, at which time it is closed and the distribution of prize money for that period paid. Bogies are then re-assigned based upon the results of the previous campaign, so as to insure those who apparently had a larger bogie than their opportunity would afford them to make, to be adjusted accordingly, which would prevent any one or two or three teams continually placing first, second and third, thereby disheartening the other teams, who through their duties might not be afforded the opportunity for procuring prospects, presuming that the past campaigns have reduced the possibilities of new business from personal acquaintances to a point where they are not in a position to secure a great many prospects and were dependent upon contacts made in business hours, or in the evenings.

A weekly report of team standings, together with the percentage of bogie made, is published.

Meetings with individual teams in the form of pep meetings, sales instructions, drawing their attention to the fact that their showing has not been what was expected of them, are held from time to time as necessary.

"Flashes" of not too serious a nature, together with suggestions as to how to secure prospects, comments on high salesmen for various teams, amount of money received in commissions by them, together with the notice of special campaigns planned by the company on ranges, refrigerators, waterheaters, etc. are sent out to the employees.

Our findings were that, unless this effort was continued and a man spent his entire time fostering and directing these campaigns, the general employee lost interest and allowed the prospects to lag to a point where we would receive very few. A true reflection of

the value of these campaigns can be had through the fact that 64% of our gross sales for 1932 has been sold on employees' prospects by our trained salesmen. It is well to consider that while the salesman is working on general employees' prospects, he cannot be seeking business of his own origin, but with conditions as they exist today, the results may reflect a greater amount of sales than would be possible if the salesmen had to canvass for their prospects house-to-house in this period of reduced buying.

It has been found invaluable to have an expression from the various officers of our company go forward to the general employees from time to time, commenting upon the showing made through their organization and urging their continued loyal support in the matter of securing business. Department heads can give further momentum through their expressions in letters to those under their jurisdiction, urging them to be sure that no other group is leading them at the conclusion of any campaign.

The 776 employees are set up into 14 teams, making eight places available for prize money—in other words, 1st to 8th place; first place getting 25% of the total money appropriated; second place 20%; and so on down the line.

There has been a great deal of discussion pro and con regarding the advisability of allowing the general employee to make sales direct. To test this fact we urged the employee to sell direct in the Radiantfire campaign now being conducted. The results of direct sales by employees in this campaign so far have borne out the judgment that it is not advisable or profitable to have the general employee endeavor to sell direct, but rather to have him turn in a prospect; inasmuch as at this time of writing (covering 3 weeks of the Campaign) 85 radiant fires have been sold, of which only 3 were direct sales by employees and 54 sales were on employees' prospects. It is therefore evident that there is more to gain by the employee turning in a prospect rather than having him attempt to make a direct sale, in which he may fail and the lead which otherwise might have been turned in as a prospect, becomes lost for all time, inasmuch as I know of no one who cares to acknowledge or display the fact of his failure. It is well to consider the psychology of all matters pertaining to the general employees and to the campaign so as to assure best possible results. In the turning in of prospects the employee does not have to bother with the sale, which otherwise would be lost, rather than acknowledge he could not sell the prospect himself.

A general employee will receive no commission for a sale resulting from his prospect through a dealer by the efforts of our salesman, but he will receive point credit in the campaign, the same as allowed for sales being made through the company.

Then if his team should place in the prize money, naturally he will receive prize money on these points. This has stimulated the efforts of a great many employees, who otherwise possibly would not have participated. This is confined to major sales such as ranges, automatic waterheaters, etc., as it would be practically impossible to trace down all sales originated through dealers. A great deal of good-will has developed from this source through dealer contact.

The results so far this year, from April 1st to October 31st, have been very gratifying, as the sales made on employees' tips constituted 64% of the total sales since April 1, 1932. Instead of a handful of salesman hunting for prospects, a large percentage of the general employees is now engaged in doing so, giving the salesmen more time to actually close sales.

Effective Advertising Appeals

Analyzed by The Copywriter

Yesterday and Today

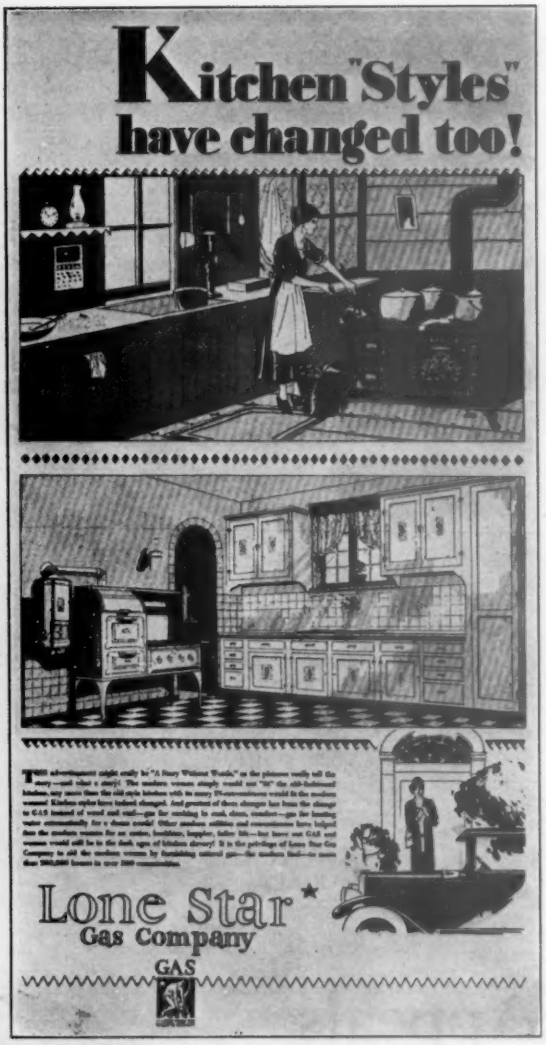
(Continued)

LAST month we were talking about the "good old days" and their occasional usefulness in advertising the modern comforts and conveniences of gas and automatic gas appliances. We saw especially how a reference to an historical incident or to an outdated custom practiced by our benighted forefathers might serve to convey a graphic idea of the blessings of present day utility service. It was suggested that advertising might increase public appreciation and approbation of the gas industry by reminding people of what the world was like before the initiative of the gas engineer made it possible for everyone to enjoy the labor-saving advantages of the "ultimate fuel."

The assumption was that gas, and similar inventions of our current civilization, had done away with all the trials and tribulations associated with the pre-utility age. That, as must be realized after a moment's thought, is far from the facts. There are thousands of families and individuals today—even those of more than moderate incomes and living in "restricted" residential areas—whose modes and methods of living, and especially homemaking, are almost if not quite as crude as those of the Pilgrim fathers of 1620 or the Esquimaux of 1933. The trouble is that such people generally imagine that they are thoroughly in tune with their age. Advertising is probably the best tool in the world to release them from that complacency.

Living in the Past

Our problem, therefore, is with those who are living today as though it were yesterday. It is similar to the problem that was recently tackled by one of our larg-



The text on the above ad reads as follows:
"This advertisement might easily be 'A Story Without Words,' as the pictures really tell the story—and what a story! The modern woman simply would not 'fit' the old-fashioned kitchen, any more than the old style kitchen with its many IN-conveniences would fit the modern woman! Kitchen styles have indeed changed. And greatest of these changes has been the change to GAS instead of wood and coal—gas for cooking is cool, clean, comfort—gas for heating water automatically for a dozen needs! Other modern utilities and conveniences have helped free the modern woman for an easier, healthier, happier, fuller life—but leave out GAS and woman would still be in the dark ages of kitchen slavery! It is the privilege of the Lone Star Gas Company to aid the modern woman by furnishing natural gas—the modern fuel—to more than 200,000 homes in over 200 communities."

est tooth-paste manufacturers. Perhaps you recall it, in newspapers and national magazines, under such headlines as "What a Fool! Meticulous about the pattern on his shirt—Careless about his gums." Then followed something about that bogey-man offspring of advertising, "pink tooth-brush."

We can visualize a theme of this type (though we do not favor "scare" copy) being equally effective in gas advertising. For example, how proud we Americans feel, when traveling abroad, in referring to our central heating systems, which occur almost as a matter of course in nearly every urban and suburban home in this country, but which in England are only just beginning to supplant the individual basket of live coals! We pride ourselves on steam heat, but think nothing of piling up a winter's accumulation of ashes, clinkers, and other furnace refuse. From pink tooth-brush to "black dust cloth!" A Rolls-Royce at the door . . . "but they have to heat the water when they take a bath."

Shame copy, if you want to call it that; but they shamed school boys into enlisting for the war, and they are shaming people today into contributing to the Emergency Relief Fund. Shame is simply an appeal to man's innate sense of decency. It is perfectly legitimate advertising short of the point where it becomes downright insulting.

Besides, nobody wants to appear ridiculous to his neighbors. Quite apart from the inconvenience of it, your wife wouldn't be seen pumping water for cooking or washing in the back yard, simply because you failed to install a running water supply. Nevertheless, you may expect her to shovel coal beneath a boiler, jab an ice pick into her finger or burn it while testing the oven of her range. Those things don't stand out to the world quite as plainly as an out-house. But your advertising can make the point that they are just as substandard and obsolete.

Using "The Good Old Days" Idea

How good *are* the good old days? A series of extremely interesting advertisements could be developed out of things that we take for granted today, but which did not exist a generation or more ago; not big, dramatic things like the automobile, but little everyday matters that are really far more important, such as for example, the daily delivery of mail. People who enjoy modern, automatic gas service would just as soon think of going back to the pony express as to return to the "watchful waiting" of stoves, heaters and other household appliances that are operated by hand. One good advertisement deserves—in fact, requires—another.

How Good Are the Good Old Days?
Next time you wonder if the good old times were really all some folks claim, and gazing back you hanker for them, just check over the things you have and give it another thought.
The following things weren't in the good old times just 50 years back—yet almost everybody has them today. How many have you?
*No home is modern without Self-Action Gas Hot Water Service!
Automobile
Electric Light
Automatic Gas House-hold Heating
Electric Refrigerators
Radio
Electric Cleaner
Electric Washer
Electric or Gas Ironer
Mail delivered daily
Telephone
NORTHERN INDIANA PUBLIC SERVICE COMPANY

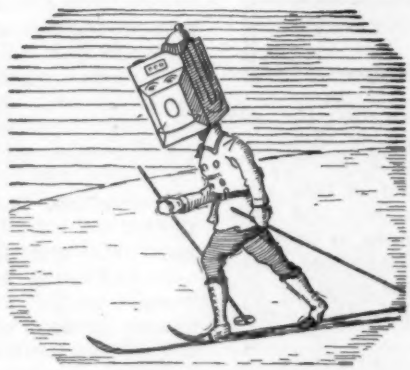
"In the Gloaming," before the cheerful warmth of a radiant gas fireplace, is an excellent place to evoke memories of childhood experiences and the days when it was your daily chore to split wood for the kindling or sweep up after an over-flowing scuttle of coal. Re-

(Continued on page 35)

AMERICAN GAS MERCHANDISING ALMANACK

February, so we have heard, will see a big drive started to sell gas cookery; plans will also include selling everything from a two burner hot plate with a portable oven, up to the full-fledged, insulated, oven regulated table top models of ranges. "Gas is the most efficient cooking fuel known to mankind," or something along that line, will be the slogan of the salesmanagers in the gas industry during 1933.

February will also find the gas man ordering new stocks of new appliances; it will see him advertising cookers, laundry stoves and even gadgets for use on the main-top burners of the gas range, such as toasters, griddles, waffle irons—the old cooking load shall not perish from our lines, or we miss our guess.



February displays should include the gas range and gas cookery and gas water heaters. Play up these home services in the tempo of the times, just what may be had for so little. Do not be afraid to feature the smaller items such as cookers; folks will buy them if you have them for sale and you will keep the cooking load in the home. On the other hand, if you do not, the chain drug store might sell them a 50c electric stove.

February

1933

1—Wed. **Time to think about GAS cookery.**

2—Thurs. **Get your newspaper advertisement ready for insertion.** Fritz Kreisler, violinist, born, 1875.

3—Fri. **Change your window displays.** Horace Greeley, editor, born, 1811.

4—Sat. Interstate Commerce Commission created, 1887. **Check over store display.**

5—Sun. Georgia adopted a state constitution, 1777.

6—Mon. Massachusetts ratified U. S. Constitution, 1788. At the annual meeting of the Washingon (O.) Gas Light Company the following Directors were elected: Morris Sharp, Col. H. P. Maynard, F. L. Nitterhouse, Daniel T. McLean and Jerome Penn. The Directors effected the following organization: President, Morris Sharp; Secretary and Treasurer, Jerome Penn. The only change was the election of Daniel T. McLean, who replaces Judge Daniel McLean, deceased, 1892.

7—Tues. Charles Dickens, novelist, born, 1812. How he'd enjoyed Automatic Hot Water Service.

8—Wed. General W. T. Sherman born, 1820.

9—Thurs. **About time to start to think about March activity.**

10—Fri. Wm. Allen White, journalist, born, 1868. **Put in a Special Lincoln Window Display.**

11—Sat. Eighty-seventh Anniversary of the birth of Thomas Alva Edison.

12—Sun. Lincoln, the great emancipator, born, 1809.

13—Mon. Sidney Smith, creator of "Andy Gump," born, 1877. **Put in Special window commemorating St. Valentine's Day.**

14—Tues. St. Valentine's Day. The Brockton (Mass.) Gas Company has moved into new and handsome office quarters, at 24 East Elm Street, 1898.

15—Wed. Joseph Hergesheimer, novelist, born, 1880. **Time to make final check on March activity.**

16—Thur. Fort Donaldson surrendered 1862. The proprietors of the Green Bay (Wis.) and Fort Howard Gas and Electric Light Company have filed articles amending the name of the corporation to that of the Green Bay Gas and Electric Light Company, 1896.

17—Fri. Joseph Daskman, author, born, 1876. **Time to get Sunday's advertisement to Newspapers.**

18—Sat. Phonograph patented, 1876. **Time to re-arrange floor and window displays.**

19—Sun. Mary Garden, singer, born, 1877.

20—Mon. Congress enacted the first comprehensive American postal law, 1792. The first Postmaster-General received a salary of $2,000 per year.

21—Tues. Washington Monument, Washington, D. C., dedicated, 1885.

22—Wed. Florida ceded to the United States, 1819. **Time to check over lists to be used in sending out March mailings.**

23—Thur. Americans victorious at Buena Vista, 1847. **Time to go over newspaper advertisements to be run during March.**

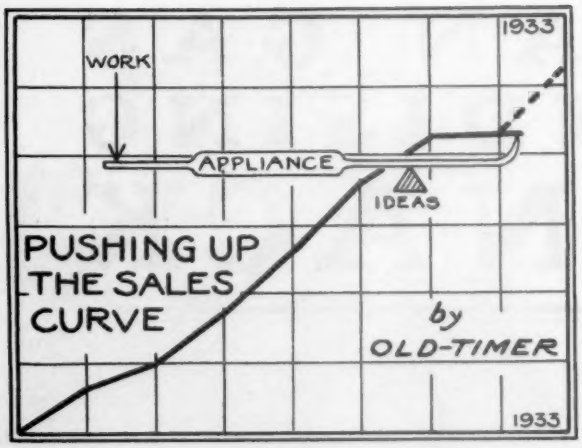
24—Fri. Vincennes, Indiana, captured, 1779. Mr. F. P. Dysen has petitioned the Massachusetts Legislature for legislation to regulate the price of gas so as to provide that no company shall collect a higher price from any consumer using less than 200,000 cubic feet per annum than it charges other consumers using more than that amount. Another proposition before the Massachusetts Legislature has for its object the placing of the Board of Gas and Electric Commissioners in the category of single member commissions. In other words the Board is to have one member, instead of three, as at present. It is not likely the plan will be endorsed, although it is said some of the companies favor it, 1895.

25—Sat. First revolver patented, 1836.

26—Sun. Napoleon escaped from Elba, 1815.

27—Mon. 15th Constitutional Amendment proposed, 1869.

28—Tues. Isabel Irving, actress, born, 1871. And NOW IT IS HOPED we are all set to overcome the Ides of March.



Wherein are advanced some thoughts for getting things started.

WE believe the gas man is about to right-about-face, that is, he is going to take cognizance of the tempo of the average family and offer wares for sale that are tuned to their taste as to price. This means that the year 1933 will probably see many gas men staging "sales" of the sort that gave the gas industry its first impetus in merchandising home needs in a big way.

As we view it, newspaper and direct mail advertising and window display advertising of 1933 will feature a come-back of such items as the four-burner cooker, the gas toaster, three-burner hot plates and portable ovens and "tank" or circulating gas water heaters—and why not, they all are tuned to the times and they all provide a certain amount of gas service to the consumer and a definite LOAD to the gas man. Don't forget that LOAD, for that is the thing we need, by and large.

We agree that it is going to be pretty hard for some of the boys to devote sales effort to these low-priced, common-place items, but it has to be done and you can take our word for it, the idea did not start in the small-time towns either, not by a jug full.

Someone has said that if this be the case we are going backward—no, we cannot concede that; our reasoning is that we have simply decided to hold what we have got by giving folks what they want, and thereby keep a customer for the larger and more serviceable appliances we have to sell when the consumer gets a new perspective or an enlarged purse.

Gas Cookery Activities

It is our opinion that the gas man should bend every effort to promote the sale of gas cookery this year and that it be a continuous activity, with perhaps two or more periods of intensive sales effort to top it off. We think he should employ every possible means and every opportunity to tell folks what a wonderful thing gas cookery really is. We are of the opinion that he will do well to dig out all the old-time plans he used way back there when he first exhibited the "cabinet range." We think "thrift recipes" used as inserts with gas bills would be in order; that any special exhibit, store and public, in connection with newspapers or other local agencies should prove worth while and we even think the "School for Cooks" might well be revived. In short, we say that in 1933 we first of all must think of selling gas cookery and, once this has been done, fit the equipment to the ability of the consumer to buy—that is, if we are to hold that cooking load and cash-in as purses become plutocratic.

We feel that the same tactics may well be applied to gas water heating; give the people what they want in the way of a water heater and get the gas water heating load. With the circulating type gas water heater as a "campaign item" you can make an intensive drive and stage it in a co-operative fashion with the hardware dealer, the plumber, the furniture man and department store.

We recently heard of a plan where the gas company got together with the plumbers and, even at this writing (early December), are going along in good shape and paving the way to perfect an organization that will be city-wide for a spring drive. This company and the local plumbing contractors got together on price, display, terms and installation costs. The gas company agreed to do the promotion work,—simple enough—and as a result the heater that is being featured is one of an approved type. The price has been built so as to offer the customer more for his money than he could possibly get if he went out and bought a heater and undertook to connect it himself or employed a journeyman to do it—and best of all, everybody will make a profit out of the heaters sold by them, the gas company being able to ride along and pay for advertising and selling cost and still get out with a small net in black. And they get the water heating load.

It looks like we gas men had better give a little thought to the new air heating-conditioning machines that are being developed for home use. Why not home and office humidification and heating with gas, one or both, as a thing to experiment with?

Fight Will Be Developed

1933 will develop the fight in us and when we get toned up we will have a lot of new ideas crop up. There will be research on customer's needs, and into rate structures that will promote the use of gas for a number of things that are now unheard of or are considered prohibitive. We expect to hear of some far-sighted gas man developing new gas-making methods that will provide a greater manufacturing efficiency and at less cost than we who stood on the charging floors, say ten years ago, ever dreamed of. Such new processes would enable us to devise off-peak rates for water heating and certain industrial processes and in turn enable us to build a home heating rate that the so-called "mass-class" will eagerly welcome, as it will enable them to do all kinds of heating in their homes efficiently and economically.

We have to sell the gas bill. That we have not sold the gas bill is, in our opinion, one of the big reasons why more folks do not enjoy the full advantage and satisfaction to be had from automatic hot water service. Just who is at fault here you must judge, nevertheless it is true that we have not done the job of selling hot water service that we might have. This being the case, why not take a fling at it in 1933. Why not forget about cost of appliance and go out to sell hot water service for a thousand home uses at so much per person. To do this we are going to have to start all over again. We will have to install one of the modern storage heaters in our own home for a period of sixty or ninety days and study it at first hand before we attempt to sell automatic hot water service to anyone else—let's try it and if we cannot sell ourselves in that length of time we'd better forget it and devote out time to pushing some other load building appliance.

Success in selling anything is a matter of becoming enthused. However, we want to note that we do not think you can get much cooking load by making slighting remarks about other fuels used for that purpose. We recently saw a range advertisement (in fact several of them) that hit-back, if you know what we mean, because it knocked by suggestion. It inferred that gas

was a dirty, greasy fuel, that it smudged pots and pans and that the cook could not tell whether the rouge on her lips was of the right shade of red. That's not good. We say sell by suggestion, but not by suggestion that directly slaps the other fellow's stuff. "Ask Dad, He Knows" that over sixteen million women were not sold on the idea of gas for cookery by the use of a hammer—"they're all good," he'd say, "but where heat is required you can do better with gas." Let's tell folks just how good gas really is and let the other fellow take the defensive in selling cookery in 1933.

If you have a Home Economist, try to work out a plan whereby she will supply the newspapers with a column of tested recipes for their weekly food page, as well as special information regarding the use of special cooking appliances. If you are seeking helps to carry on your range campaign, thumb through the pages of this magazine as it reaches your desk each month; turn to the advertising pages and also go through back numbers on file in your office and you will find many, many ideas that may be fitted into your plans to sell gas ranges this year as you never sold them before.

One organization that we know of uses a mimeographed company house organ to tell the story of modern cookery to every one of its employees. This house organ consists of a single sheet and is enclosed each month with the employee's pay check. We understand that while no special effort has been made to sell employees new ranges several have purchased them through a desire for the newest and best as portrayed by this sheet.

Effective Advertising Appeals

(*Continued from page 32*)

lief from these tasks need not deprive your fireside of any of its sentimental charm. "Modern Heat with Oldtime Fireside Cheer." Why not add—"Plus 20th Century Service"? Even in the poorest home today, and for only a few pennies, Gas Service brings you luxuries that even kings and queens could not formerly enjoy. That kind of advertising message is promotional, educational, and institutional all rolled up into one.

Even the pennies have their place in our scheme. The liberal use of gas in winter time means, of course, that the bills are higher. On the other hand, the American home has progressed to its present high standard simply because women found a place in the household budget for the elimination of daily drudgery and to the making of the home more comfortable and cheerful. It is safe to assume that not one person in a thousand who complains about the cost of gas would willingly go back to the days before utility service routed "night work" from the home.

Everything—or nearly everything—is fun for some people. One of the Copy Writer's most endearing memories is that of stealing chips from the back of the ice wagon. They were most refreshing on hot summer days—and what of it if they were covered with sawdust and Lord knows how many germs? It must have worried our parents and undoubtedly was one of the factors that paved the way for the almost instantaneous acceptance of automatic refrigeration. It may be well to consider today what inducements will serve to prepare the next generation for the next great advance, which, we are told, is now taking form in respect to air conditioning. Brittle finger nails . . . dry scalp . . . falling hair . . . warping door frames?

It is one of the functions of advertising to make people realize the passing of time. Nothing can be modern in the truest sense as long as there is something better to take its place. We will wager that the majority of housewives think their gas range is doing all that can be expected from it if only the burners light when the match is applied. The extraordinary long life of some cooking appliances is certainly due to the fact that their owners have never had the proper incentive to replace them with something new. A good way to dramatize this condition—although it could not be worked frequently—would be to conduct a prize contest for the individual who owned the oldest gas range in the city. A modern range as the prize would demonstrate the enormous improvements that have been made in gas cookery since the old-type gas stove was in style.

Don't Overlook Style Factor

And don't forget that the style factor is not to be overlooked. The difference between the kitchen of today and that of thirty or more years ago is not limited to the spic-and-span appearance and smartness of the former. Just picture the difference in clothes that the homemaker wears. We don't mean the clothes in the fashion book—not the design, but the kind of dresses it is possible to wear. Aprons and utility garments were necessities of the past generation. Today the woman who does her own housework, even in the kitchen, is dressed for any purpose that suits her fancy, from receiving callers to going to church. It is not gas service alone which has brought this about, for gas has been used for cooking and other functions for at least forty years. It is the modern gas appliance, easy to use, easy to keep clean, and now becoming completely automatic in almost every detail, that is doing more to better the status of the "vice-president in charge of the home" than any other single development. "Better Methods Have Arrived—Why Not Adopt Them?" "The Good Old Days Are *Now!*"

Facts about Letting a Painting Contract

C. L. FRYE

EVERYONE knows that, in a depressed market, competitive bidding among contractors very often turns into nothing more than a mad price scramble. During such periods, the irresponsible low bidder forces the honest workman either to adopt a practice of "skinning through" on a job—doing, not his best work, but the best he can do under the handicap of a low price—or to lose the contract. This unhealthy condition is encouraged by the policy of letting contracts on price alone without giving due consideration to what the price represents. Such a policy places a penalty on high standards of workmanship and the use of good materials, and very often results in incalculable harm both to the contractor and to his employer.

The fact that painting contracts are usually let when the job under construction is nearing completion and money is running low serves only to make a bad condition worse. The low-bidding painting contractor very often is able to secure the contract regardless of what his bid represents. The importance of hiring a good painter who does good work is overlooked in the effort to get the work done "cheaply" and quickly.

Nothing is more expensive than a "cheap" painting job. Consequently, for their own protection, if for nothing else, those who award contracts should keep an open mind regarding all bids until they have had an opportunity to investigate the reputations of the contractors and to find out what each one of the bids includes. The highest bidder should not be condemned offhand as "too high priced" nor the lowest bidder as a "gyp outfit". Above all the contract should not be awarded to the in-between bidder just because his price happens to be the average one.

Generally speaking, a wide variety of bids can usually be expected, especially on a job of some size. Sometimes the lowest bid will be found to be entirely justified on the basis of the character and amount of work to be done, but more frequently investigation shows that the low bid is only possible because the contractor is planning on doing less work than is actually necessary or because he intends to use poor materials. While such a contractor may be able to turn out a job which will be satisfactory as far as initial appearance is concerned, he rarely if ever is able to produce a job which will last long enough to warrant the amount of money invested.

One of the most effective ways for a contractor to hold down his price is to omit a necessary coat—using two coats where three are required, or one coat where two are called for. Few responsible painters will recommend a two-coat job on new work or a one-coat job on repaint work. Each one of the three coats on new work and the two coats on old has a definite function to perform. The omission of the third or second coat, as the case may be, may mean running the chance of spotting, fading or excessive chalking. Before awarding the contract, therefore, the first thing to determine is how many coats the contractor intends to use.

One Reason for Low Bid

A low bid may also be possible if the contractor neglects to figure on the proper amount of surface preparation. Even on new houses and buildings, surfaces often cannot be painted satisfactorily without careful preliminary preparation. For instance, new plaster walls must not only be thoroughly dry but should be aged at least six months before being painted. Where it is not possible to allow this time to elapse, aging can be accomplished by treating the surface with a solution of two pounds of zinc sulphate to one gallon of water. Will the low bidding contractor make this preparation and will he allow the surface to dry thoroughly before painting? In the same way as new plaster, new stucco or concrete should be aged either naturally or artificially before being painted. Is the labor for preparation figured in the contract?

Furthermore, if there are any metal surfaces to be painted, will they be cleaned of all grease, dirt, loose rust, or scaly paint? On new wood, will all knots and sappy streaks be shellacked after the priming coat has been applied, with a good high grade shellac? These are precautions which must be taken if a satisfactory job is to result. Although their omission may lower the bid, it also lowers the value of the completed job.

Still another factor which often results in a low bid is the use of poor materials. On a painting job where material costs represent only a relatively minor portion of the total cost of the job, there is no justification for using doubtful or inferior materials. Their use may result in a costly repaint job which will make the painting investment twice as great as originally intended. The per-gallon cost of pure white-lead paint, when the durability and the spreading rate are considered, is very low. Consequently the use of an inferior material cannot be justified from the point of economy. Pure linseed oil and turpentine also should always be insisted upon. Non-drying or slow-drying oils will result in a tacky paint film over which no paint can be applied without serious defects such as blistering and alligatoring, ultimately resulting in an expensive burning-off job. The use of benzine or kerosene instead of turpentine is a poor practice.

Unfortunately most paints look alike before and immediately after they go on the surface. But the real test of their value lies in how long they will wear. And the results of such a test are not known until after the investment has been made and it is too late to repair the damage without further cost. A responsible painter will usually base his estimate on well proven materials, the performance of which he can guarantee. The irresponsible painter will lower his bid by substituting inferior materials which will give rise to endless trouble later on. "Cheap" paint may reduce the contractor's bid and the employer's initial cost but it will never, because of that, make the job cheap.

Matter of Inferior Labor

Another factor which permits the contractor to submit a low bid is the hiring of inferior labor. At the present time plenty of good journeyman painters are available. A contractor who hires inexperienced workmen at lower rates cannot be trusted to produce a satisfactory paint job. He, above all others, knows that not everyone is capable of handling a brush and applying paint. Good painters are skilled workmen and the wages they receive are in recognition of the amount of valuable experience which they bring to the job at hand. Unskilled workmen cannot do the type of work which skilled painters perform.

If after investigation, all contractors are found to be bidding on the same amount of materials and labor, a diversity of bids is still possible. A better management of materials, labor and equipment often results in a substantial saving which is reflected in the bid. Again, the overhead costs of the contractors may vary somewhat due to such variables as shop rent, advertising, office staff, etc. A bid which is low because it is known to be based on little or no profit to the contractor may well be avoided. No contractor can afford to run his business without profit and the temptation to squeeze his profit out of the costs of material and labor is very great.

The final factor to be considered in letting a painting contract is the contractor himself. He is a yardstick by which the value of the resulting job can be measured. If he is experienced, efficient, business-like, the chances are his men will be likewise. It is a good plan to observe the manner in which he estimates and submits a bid on the job. If he does it carefully and deliberately with the obvious intention of being fair to all concerned, his bid should receive careful consideration regardless of whether it is high or low. Furthermore his reputation in the community should be investigated. Financial responsibility and past performance are usually sufficient evidence of a contractor's trustworthiness.

The work a man has done in the past is always a good index of what he will do in the future. Before letting the contract, find out whether the contractor insists upon cleanliness and neatness among his men. Will he protect floors, walks, and shrubbery from paint spots? Will he scatter his material and equipment all

over the property or will he have it neatly arranged in a place set aside for him? Will his men handle their ladders and scaffolding carefully without damage to walls or windows? Will they collect all old and oily rags or will they leave them about to create a fire hazard?

Furthermore, is the contractor's equipment in good shape? All states do not have workmen's compensation laws to protect the property owner. A broken rung on a ladder or a cracked board on a scaffold may involve the owner in a lengthy civil suit. The best protection for the owner against such expensive accidents is a careful contractor.

Finally, will the contractor leave the job in perfect shape or will there be empty paint pots, soiled cloths, and paint daubs on the windows and walls? Particularly on large jobs, the cost of cleaning up after workmen have left often amounts to a considerable sum. The time for the owner to find out how the painter will leave the job is before he has begun it. Responsible contractors will be glad to furnish references who can vouch for the manner in which they conduct their jobs.

The necessity for careful consideration before letting a contract should be apparent to everyone. A paint job is an investment which, in the event of a failure, is entirely lost. There is no salvage in a poor paint job. Furthermore, in no other business can substitution be accomplished more easily and inferior labor concealed more completely until too late. The honesty and good reputation of the contractor are worth the price that must be paid for them.

Courtesy Dutch Boy Quarterly.

New Texas Conservation Act Provides for Wide Alteration of Former Statute

In American Gas Association Information Service Letter No. 105 there was abstracted the recent decision of the Federal court in the case of Peoples Petroleum Producers v. Smith setting aside the order of the Railroad Commission of Texas on the ground that it was contrary to that part of the conservation act providing that the commission orders against waste shall not mean economic waste and the commission shall not have power to attempt by order or otherwise, directly or indirectly, to limit the production of oil to equal the existing market demand. The Legislature of Texas in special session has eliminated this provision of the Texas law and broadened the scope of power and authority of the commission; the bill being signed by the Governor of Texas on November 12, 1932.

Generally speaking, the law applies to natural gas as well as oil.

"The production, storage or transportation of crude petroleum oil or of natural gas in such manner, in such amount, or under such conditions as to constitute waste is hereby declared to be unlawful and is prohibited. The term 'waste' among other things shall specifically include:

(a) The operation of any oil well or wells with an inefficient gas-oil ratio, and the Commission is hereby given authority to fix and determine by order such ratio.

(b) The drowning with water of any stratum or part thereof capable of producing oil or gas, or both oil and gas, in paying quantities.

(c) Underground waste or loss however caused and whether or not defined in other subdivisions hereof.

(d) Permitting any natural gas well to burn wastefully.

(e) The wasteful utilization of natural gas, provided, however, the utilization of gas, lawfully permitted to be produced from a well producing both oil and gas, for manufacturing gasoline shall not be construed to be wasteful, etc.

(g) Physical waste or loss incident to, or resulting from so drilling, equipping, locating, spacing or operating well or wells as to reduce or tend to reduce the total ultimate recovery of crude petroleum oil or natural gas from any pool.

(h) Waste or loss incident to, or resulting from, the unnecessary, inefficient, excessive or improper use of the reservoir energy, including the gas energy or water drive, in any well or pool; however, it is not the intent of this Act to require repressuring of an oil pool or that the separately owned properties in any pool be unitized under one management, control or ownership.

(i) Surface waste or surface loss, including unnecessary or excessive surface losses or destruction of crude petroleum oil or natural gas without beneficial use.

(j) The escape into the open air, from a well producing both oil and gas, of natural gas in excess of the amount which is necessary in the efficient drilling or operation of the well.

(k) The production of crude petroleum oil in excess of transportation or market facilities or reasonable market demand. The Commission is authorized to determine when such excess production exists or is imminent, and to ascertain the reasonable market demand."

It is also provided by section 4: "Whenever the full production, from wells producing gas only, from any common source of supply of natural gas in this State is in excess of the reasonable market demand, the Railroad Commission shall inquire into the production and reasonable market demand therefor and shall determine the allowable production from such common source of supply, which shall be the reasonable market demand which can be produced without waste, and the Commission shall allocate, distribute or apportion the allowable production from such common source of supply among the various producers on a reasonable basis, and shall limit the production of each producer to the amount allocated or apportioned to such producer."

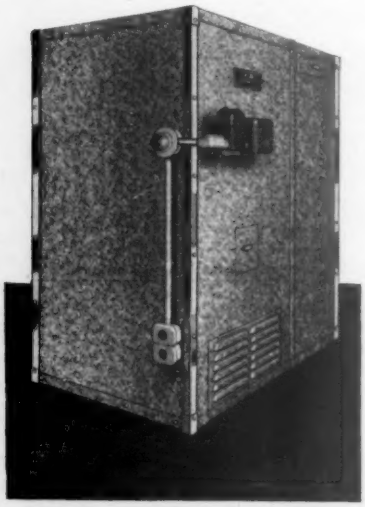
The Act carefully provides: "That in the administration of this Act the Railroad Commission of Texas shall, at all times, take into consideration and protect the rights and interests of the purchasing and consuming public of crude oil, and all of its products, such as gasoline and lubricating oil and their rights, etc."

The Common Purchaser Act as well as the Marginal Well Act are left in full force and effect.

EQUIPMENT NEWS

Edwards "Hot-Kold" Heating and Air Conditioning System

The Edwards Mfg. Co. Cincinnati, O., recently issued a four page folder describing the Edwards "Hot-Kold" system of heating and air conditioning, gas fired.



Edward Hot-Kold Air Conditioning Units burn gas. The fuel is fed to the burner automatically and its flow is controlled with absolute certainty. The instant the fan ceases to drive the heated air through the concealed ducts to the rooms above, the flow of gas is shut off. The fuel supply stops instantly when the fire is extinguished. Explosion and back fire are impossible. The unit is protected by a safety pilot of approved design. In event of gas failure for any cause, the unit is automatically shut off. It is thermostatically controlled.

Humidity control is entirely automatic, but always subject to control. A humidistat, conveniently located regulates the amount of water the Hot-Kold unit requires to give desired moisture (humidity) to the air. The instant the fan is started by pressure of an electric button, the valve that controls the supply of gas opens and the pilot light ignites the vapor as it enters the burner. The heat thus generated is applied directly and at the top, bottom and sides of the burner chamber. The fan is completely enclosed within the circulating system. It draws the stagnant air through tiny grilles on the floors of the rooms above. This air is drawn through an air filter of spun glass where all dust and impurities are removed, into the main heating chamber. Instantly its temperature is raised to that of the heating chamber. Thence it is passed across a pan of water where it takes up the amount of moisture determined by the regulation of the humidistat. This air, filtered, heated and humidified is driven in a steady current upward, through the conductor pipes that are concealed between the studs of the walls.

The folder also describes how the system is used for cooling the home. A copy will be mailed on request.

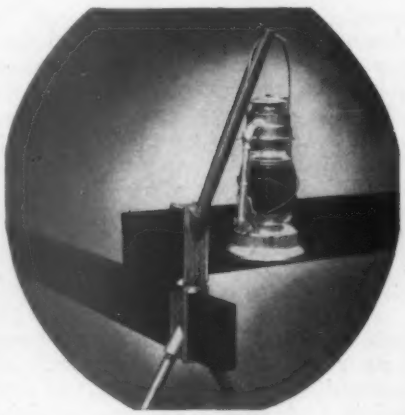
U.G.I. Gas Heating Value Computer Now Available in Slide Rule Form for Both Manufactured and Natural Gas

The U. G. I. Gas Heating Value Computer for use with gas calorimeter, is now made in the form of a slide rule, with a range of from 300 to 1300 B.t.u. per cubic foot, which will meet the requirements of both manufactured and natural gas. This instrument is easy to operate, mechanically accurate and constructed to give long service. Size is 16" long by 2½" wide.

The U. G. I. Gas Heating Value Computer is being marketed by The U. G. I. Contracting Company Division of United Engineers and Constructors Inc., Philadelphia, Pa.

New Trench Guards

The Cleveland Trencher Company, Cleveland, O., manufacturer of Wheel and Ladder type trenchers, the combination Tamper-Backfiller and Penote Manhole Forms have just announced a new product—Cleveland Trench Guards.



These patented, interconnected metal trench and excavation guards are intended to replace the old unsatisfactory, ineffectual wooden "barricades".

For many years, Utilities, Municipalities, State and Government construction departments, and contractors have felt the inadequacy of the old wooden "horses" to do a real job of protection in case of open excavations, ditches and trench.

The illustration shows the design and construction of these new guards and demonstrates how practically a series of them will enable the user to quickly construct a complete, unbroken fence entirely around any shape of excavation or alongside of any trench. The fact that the "Guard Rail Holder" swivels in any direction assuring equal efficiency no matter at what angle the rails are set is novel and unique and the flexibility thus secured increases very materially their usability.

A feature of Cleveland Trench Guards that adds greatly to their value is that they are interconnected. This connecting of the rail has two further advantages, in that it also cuts in half the number of supports required on any job and sets the alternate rails at different heights adding greatly to the attention value.

Another feature that is exclusive to Cleveland Trench Guards and increases their value, because of the added safety secured, is the combination lantern and flag support which places either well above the guard rail, and in full view from every direction. Flag or lantern is secured in position by the insertion of pin or nail, thus minimizing considerably the chance of loss or theft of the flags and lanterns.

These new trench guards, made of rust proofed malleable iron, will deliver long service and assure economy because of the elimination of the breakage and replacement constantly necessary with wooden horses.

The galvanized pipe legs and lantern-flags supports are threaded for ease in setting up and dismantling and the entire guard can be conveniently packed in small space for transportation.

Retort Cement

Quigley Company, Inc., 56 W. 45th St., New York, recently issued a new bulletin describing Quigley Retort Cement for hot patching of gas retorts, and other applications in the gas plant.

The Cement is a highly refractory plastic material—prepared ready for use, in smooth, putty-like form. It requires no dilution, or building-up with refractory aggregate for ordinary retort patching work. It does not depend upon heat for its adhesive qualities. It air-sets—forms a strong bond without application of heat, and becomes an integral part of the structure to which it is applied. It adheres to brick and metal surfaces, **hot or cold.** It retains its strength throughout the range of furnace temperatures. Heat increases its strength of bond.

Copy of bulletin will be mailed on request.

Formula for Controlling Corrosion

The laboratories of D. W. Haering & Co., Chicago, Ill., have developed a chemical formula for controlling corrosion and eliminating scale and rust from hot water lines and heaters which is unique in its action and composition. This material does not coat the piping but controls corrosion by attacking the fundamental causes. This material combines directly with oxygen forming a stable compound and thus removes oxygen as a factor in corrosion. Carbon dioxide is absorbed on the surface of the colloid while scale forming particles are maintained as suspensoids. The material is easily adjusted for pH control.

The base formula frequently requires no adjustments, has a pH of about 5.5, less than 2% mineral matter, reduces Fehling's solution, combines with lime, is partially volatile and is equally well suited for boiler and hot water treatment.

New Amthor Hand Tachometer

A new portable tachometer for testing r.p.m. machine speeds has just been put out by the Amthor Testing Instrument Co. Inc., 309 Johnson St., Brooklyn, N. Y. This is their type No. 350 shown here, of which the most important feature is the Automatic Fixed Reading. When the tachometer is applied to a rotating shaft, the pointer instantly points to the speed and follows every pick-up or slow-down; but when taken away, the pointer does not return to zero. It remains fixed at the speed reading on the dial. With this new feature it is no longer necessary to keep the eyes focussed on the dial and the tachometer may be used in the dark if necessary or in inaccessible places where it is awkward to hold and read at the same time. It facilitates testing and checking speeds of engines, motors, blowers, stokers, and surface speeds of belts, etc.

The dial reads directly in r.p.m. but accessories are provided so that all "ft. per min." cutting and surface speeds can be measured. Each tachometer has four speed ranges, each of which is separately read over the entire dial, thereby giving actually four times the graduation space on the one dial and consequently closer readings. Each is constructed with a finely balanced cross pendulum governor movement, is hand calibrated for accuracy, and dead beat in action.

The Significance of the Bureau of Mines Approval of Gas Masks

The approval of the U. S. Bureau of Mines when granted to a manufacturer for a gas mask is a certification that the particular device has been submitted to the Bureau of Mines for inspection and test and has been found to meet that bureau's published minimum requirements for safety, durability and satisfactory performance.

Gas masks are approved by the Bureau of Mines only as a complete unit or assembly of parts, as canister, facepiece and harness. This is in order that responsibility for rigid adherence to the bureau's requirements may be definitely located and not divided. Any device marketed under this approval must be a unit composed of parts identical in detail of design, assembly, workmanship, and quality, and produced under the same control and inspection as the original device to which approval has been granted. The particular parts which comprise the approved assembly are designated in a letter to the manufacturer at the time the approval is granted. In recent years they are also specified in the approval plate authorized for use in connection with the sale of the device. Each part permitted in the assembly is legibly marked by name or number for the guidance of users of masks in ordering and identifying approved parts when making repairs, and thereby maintaining their equipment as an approved device.

In view of the foregoing, any change in the design of parts or deviation from the permitted assembly of parts would violate the conditions under which approval was granted and the device would not be considered as meeting the approval requirements of the Bureau of Mines. The U. S. Bureau of Mines has been frequently requested to interpret the approval status of a gas mask assembled from parts which have separately met its requirements as components of two or more approved devices but which in the form of a complete unit has not been submitted for tests or been granted approval. Responsibility for the elements and for their proper assembly is in such case divided. Such assembled units have no status as permissible equipment under the Bureau of Mines system of schedules. The reasons underlying this policy are that the approval is granted only to some one who assumes responsibility for the whole and that the details of assembly and coordination of parts are considered to be important to the satisfactory performance and safety of the device.

The requirements and tests are described in the following publications:

Schedule 14B, Procedure for Testing Gas Masks for Permissibility.

Schedule 19, Procedure for Testing Hose Masks for Permissibility.

For the convenience of purchasers and users of gas masks the Bureau of Mines issues currently a list of the devices which have met its requirements and to which approval has been granted. These publications may be obtained from the U. S. Bureau of Mines, Washington, D. C.

Reprinted from U. S. Bureau of Mines Information Circular 6665.

Valuable Association Book Reduced in Price

The price of the Consumer Survey of the American Gas Industry has been reduced 20 per cent, making the new price $2.00 per copy, plus postage (mailing weight four pounds).

This 566 page publication, a most complete and detailed survey of gas service in the United States, contains information of value to all associated with the gas industry and to marketing and financial organizations.

The Consumer Survey shows for all communities in the United States, kind of gas supplied and its heating value, number of gas customers in each community and name of gas company rendering service. In addition, it includes a summary for each state showing, by counties, number of manufactured and natural gas customers. It also includes data on the total number of customers served by each company and the name of the holding or managing group with which various companies are affiliated.

For further information, address American Gas Association, 420 Lexington Avenue, New York.

New Gas Heating Installation at Yale School

One of the largest and most recent of gas heating installations in the East has recently been completed at the Yale Divinity School, New Haven, Conn. This new installation supplies hot water and high-pressure steam for nineteen buildings.

The gas company was advised that what was wanted was a heating plant to maintain an even temperature in all buildings at all times and a constant supply of hot water in the dormitories, gymnasium and kitchens. It was emphasized that all soot, fuel handling and smoke nuisance must be eliminated because of the restricted character of the neighborhood, and that there must be an unfailing supply of fuel for cooking as well as steam. Officials of the University and the gas company combined to produce exactly what was wanted.

NEWS of the GAS INDUSTRY

The Permutit Company Announces New Booklet

"No Scale, No Sludge, No Mud—The application of Zeolite Water Softeners to the treatment of Boiler Feed Water." This is the title of a very complete, interesting 36 page booklet just published by The Permutit Company, 440 Fourth Avenue, New York. It is illustrated with photographs and diagrams and contains tabulated data, conversion tables, factors, reactions, etc. Copies may be obtain free upon request to the above company.

Fisher Governor Company Open New Office

Fisher Governor Company, Marshalltown, Iowa, manufacturers of automatic controlling devices, recently announced the opening of a direct factory sales and engineering office at 30 Church Street, New York, New York. The New York office will be in charge of Mr. O. M. Galiher, Mr. A. W. Bailey and Mr. J. J. Belger.

Greensburg Gas & Electric Company File Papers for Dissolution

Officials of the Greensburg Gas and Electric Company, Greensburg, Ind., have filed papers with the Secretary of State in Indianapolis evidencing the preliminary dissolution of the corporation.

Gary Light, Heat and Power Company to Sell Surplus

The Indiana Public Service Commission has approved a contract whereby the Gary Heat, Light and Water Company may sell its surplus gas to the Indiana Public Service Company. The Gary, Ind., company for the last twenty years has purchased gas from the Illinois Steel Company. During the last three years the demand has decreased so that now there is a surplus more than the Gary company can dispose of.

Gas Well Brought In

A gas well, with a measured capacity of 4,895,000 cubic feet a day has been brought in at Sebree, Ky., by Harry C. Smith of Evansville, Ind. The well is one of several in that vicinity owned by Mr. Smith and Evansville men. J. Johnson, field manager of the Kentucky Natural Gas Company, which has contracted for the gas, said the well is one of the best in northern Kentucky.

Gets Another Gas Well

The Magnolia Petroleum Company have two gas wells on the Piceance structure in Rio Blanco county, Colorado, and recently brought in a third well, the latest making 12 million cubic feet daily. The well is 2,953 feet deep.

New England Gas Ass'n. Selects Advertising Agency

N. W. Ayers and Son, Inc., has been appointed to handle the advertising in the New England Gas Association of Boston, which is composed of the following six companies: American Consolidated Gas Company, New England Gas and Electric Company, New England Power Association, Lynn Gas and Electric Company, Old Colony Gas Company, C. H. Tenney Company. The Association will promote gas consumption.

Cincinnati Meeting of A.S.H.V.E.

The Cincinnati Chapter will be host to the members of the American Society of Heating and Ventilating Engineers for their 39th Annual Meeting which will be held in the Hotel Gibson, Cincinnati, Ohio, January 23 to 25, 1933. Responsibility for arrangements and general entertainment of the visiting members and guests is under the direction of W. C. Green, Cincinnati, Chairman of the Committee on Arrangements and the technical program is under the supervision of the Program Committee of which Prof. A. P. Kratz, Urbana, is Chairman. The Council of the Society and various committees have scheduled meetings in advance of the technical sessions on January 22nd.

Six sessions are to be held and a variety of subjects will be discussed. Reports from the Society's Research Laboratory at the U. S. Bureau of Mines, Pittsburgh, and from several of the cooperating universities, are to be presented as well as important statements on studies of residence air conditioning in summer, heating boiler performance with oil burners and many other topics of interest to engineers engaged in modern building design and construction. The report of the Committee on Research is to be presented by Prof. G. L. Larson, University of Wisconsin and of special significance to Society members is the report of the Committee on Revision of Constitution and By-Laws, to be given by Chairman W. T. Jones, Boston.

A novel program of entertainment has been arranged by the Local Committee.

The personnel of the Cincinnati Committee in charge of arrangements is: W. C. Green, H. N. Kitchell, A. W. Rooks, E. B. Royer, I. B. Helburn, H. E. Sproull, R. B. Breneman, C. E. Hust, J. J. Braun and C. J. Kiefer.

Convention Calendar

January

23-25 American Society Heating & Ventilating Engineers
Cincinnati, Ohio

23-27 American Institute of Electrical Engineers
New York, N. Y.

February

14-15 Midwest Regional Gas Sales Conference
Hotel Sherman, Chicago, Ill.

16-17 New England Gas Association
Boston, Mass.

March

7- 8 Oklahoma Utilities Association
Hotel Biltmore, Oklahoma City, Okla.

27-31 American Society Civil Engineers
Miami, Fla.

April

21 Maryland Utilities Association
Lord Baltimore Hotel, Baltimore, Md.

27-29 Missouri Association of Public Utilities
Elms Hotel, Excelsior Springs, Mo.

May

2- 4 A.G.A. Southern Regional Sales Conference
Washington, D. C.

2- 4 Southern Gas Association
Washington, D. C.

2- 5 Chamber of Commerce of United States
Washington, D. C.

May 30 to June 2 Institution of Gas Engineers (British).
Liverpool, England.

Mueller Furnace Company Appoints Representative in Cincinnati Area

The L. J. Mueller Furnace Company, Milwaukee, Wis., announces the appointment of Mr. G. T. Despardins, 622 Broadway, Cincinnati, O., as district representative in that city and surrounding Ohio, Kentucky and Indiana territory.

Mr. Desjardins has for some time been closely identified with the utility field. For a period of five years his capacity as secretary and sales manager for two associated gas and electrical equipment manufacturing enterprises gave him extensive contact with numerous utilities in the east and middle west. Later he served successively as commercial manager for the groups of properties of the Central Public Service Corporation of Chicago.

In his new connection, Mr. Despardins will cooperate closely with utilities, heating contractors, and also architects and builders.

The United Gas Improvement Company To Spend More Than $13,350,000 in 1933

Utility subsidiaries of The United Gas Improvement Company will spend more than $13,350,000 in 1933 for additions and improvements to plant equipment, according to an announcement made by John E. Zimmermann, president of the company.

Much of this money, Mr. Zimmermann said, will be spent for the extension of gas and electric service in territories supplied by the various companies of the U. G. I. system.

The principal companies and the approximate amounts they will use for this purpose during the coming year are:

Allentown-Bethlehem Gas Company, $71,900; Chester County Light & Power Company, $108,064; Concord Gas Company, $14,000; Connecticut Electric Service System, $2,047,738; Consumers Gas Company, $104,625; Delaware Electric Power and Subsidiaries Consolidated, $635,794; Erie County Electric Company and Subsidiaries, $131,147; Harrisburg Gas Company, $77,200; Lebanon Valley Gas Company, $16,090; Luzerne County Gas and Electric Corporation, $270,595; Manchester Gas Company, $19,110; Nashville Gas & Heating Company, $92,025; New Haven Gas Light Company, $162,800; Northern Liberties Gas Company, $1,700; Commonwealth Utilities System, $380,671; Philadelphia Electric System, $9,218,060.

Gas Service Company Shows Gain in Househeating Customers

The Gas Service Company, Kansas City, Mo., reports that during the first eleven months of this year their combined properties sold a net total of 1,033 gas house heating installations. This figure includes gas designed furnaces and boilers, conversion burners and large size space heaters. It is a net figure for the year, from January 1 to the last part of November, with all of the appliances that have, through necessity, been returned, substracted from the total sold. This figure includes a net of 466 gas designed furnaces and boilers and conversion burners and a net of 567 large size space heaters.

New Gas Rate for Cleveland Framed

A new gas rate franchise with the East Ohio Gas company providing for savings of six per cent to East Cleveland consumers was approved last night by the East Cleveland city commission.

The new rates as provided for in the ordinance are: first 1,000 cubic feet, 90 cents; 2,000 cubic feet, 72 cents a thousand; 3,000 cubic feet, 66 cents a thousand; 4,000 cubic feet, 63 cents a thousand; 5,000 cubic feet, 60 cents a thon- a thousand.

Harrisburg Cooking Classes Attract Many Women

Approximately 3,000 women attended the various cooking demonstrations arranged by the Home Service Department of The Harrisburg Gas Company, Harrisburg, Pa., during October. Included in these were the Harrisburg Telegraph Cooking School, church suppers and the Civic Club, cooking classes. Miss Elizabeth M. Heldt, Home Service Director, and Miss Elizabeth Lofberg, Pennsylvania State College Extension Service, are conducting the classes.

The Sonner Burner Company Announce Their New 1933 Catalog

The new 1933 Sonner Gas Burner Catalog which illustrates the correct installation for all types of heating systems is now available. In it they have listed the actual equivalent radiation capacities that each Sonner Burner will safely carry at all workable gas pressures, from 1 to 8 ounces of gas pressure and from 2½" to 14" of water pressure. This booklet has been published, having in mind assisting service men, installation men and salesmen. Each illustration shows clearly the proper location and types of recommended automatic controls to be used for each specific type of heating systems. The data included for selecting the gas burner equipment is complete.

Limits Gas Flow

The Texas Railroad Commission on January 1 issued an order, effective at once that the gas flow from the west Panhandle field be limited to 300,000,000 cubic feet daily. New orders will be issued monthly.

Central Hudson Gas & Electric Corporation Plans to Make Rate Adjustments

Early in 1933 the Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y., is planning to make rate adjustments in both gas and electric service that will result in an annual saving for customers of over $200,000.

Merchandise Sales of The Harrisburg Gas Company Show Increase

Merchandise sales of The Harrisburg Gas Company in October showed an increase over September.

Special installations included two hotel ranges, bake oven, and a small blast furnace in the shops of the Steelton High School.

Gas Replaces Electric Appliances

Two hundred electric ranges and 90 electric water heaters have been replaced by gas appliances sold by the Community Natural Gas Company on all of its properties during the period beginning January 1 and ending October 15, according to a recent report of the company.

Porcelain Enamel Institute to Conduct Exhibit at a Century of International Progress Exposition

The gas range will be an important feature of a cooperative exhibit sponsored by the Porcelain Enamel Institute in conjunction with A Century of Progress International Exposition in Chicago next year. Ranges made by the Cribben & Sexton Co., of Chicago, Eagle Foundry Co., and Oakland Foundry Co., of Belleville, Ill., and the Round Oak Furnace Co., of Dowagiac, Mich., have already been entered in this cooperative exhibit known as the Porcelain Enamel Parade.

Other range manufacturers considering participation in the Porcelain Enamel Institute's cooperative exhibit are: Copper Clad Malleable Range Co., St. Louis; Crown Stove Co., Chicago; Detroit-Michigan Stove Co., and Detroit Vapor Stove Co., Detroit; Estate Stove Co., Hamilton, O.; Favorite Stove & Range Co., Piqua, O.; Protane Corp., Erie, Pa.; Jungers Stove Co., Grafton, Wis.; Quincy Stove & Mfg. Co., Quincy, Ill; George D. Roper Co., Rockford, Ill.; and H. C. Weiskittel Co., Baltimore, Md.

According to the Porcelain Enamel Institute, the Porcelain Enamel Parade will consist of from 75-100 porcelain enameled products, each one identified by means of a row of red, white and blue porcelain enameled soldiers, which will hold a sign bearing the name of each participant's company. The exhibit will occupy a wing of the General Exhibits Building, which is joined with the Hall of Science, the focal point of the World's Fair, by a runway.

Supplementing the product display will be an educational exhibit, where a miniature enameling plant will be installed and where appropriate porcelain enameled souvenirs will be made for the benefit of the visitors. Manufacturers wishing further information should write the Porcelain Enamel Institute, 12 No. Michigan Ave., Chicago.

Hattiesburg Service Company to Discontinue Servicing

The Hattiesburg Service Company Hattiesburg, Miss., distributors of artificial gas in that section are to discontinue servicing people of Hattiesburg after 25 years of continuous service.

J. H. White, of Birmingham, receiver, said that conditions did not warrant the continuation of the service and further financial losses on the part of the company.

The Mississippi Service Company acquired the franchise for distribution of gas here and purchased the plant and equipment of the company from the Central Public Service Company.

Town Gets Natural Gas

Arminto on the Burlington railroad, about 75 miles west of Casper, Wyo., is being supplied with natural gas, the gas coming from the well owned by the Danaher Interests of Minneapolis.

Wisconsin Gas & Electric Co. Acquire New Subsidiary

The Wisconsin Gas and Electric Co., Racine, (a North American company subsidiary, has acquired the Wisconsin Public Utility Co., of West Bend, Wis., according to announcement by D. E. Callendar, vice-president and general manager of the Racine firm. The consideration, he said, was $1,100,000 covering all physical property and franchises. S. B. Way, president of the Milwaukee Electric Railway and Light Co., is also president of the Wisconsin Gas and Electric Co.

Recent Recommendations on Standardization of Printing Sizes Accepted

The American Gas Association's Committee on the Standardization of Printing Sizes has found its recent recommendations accepted by a large number of utilities and manufacturers.

Size recommendation for sales sheets, sales bulletins, price lists, etc., was 11" (binding edge) by 8½" and it is desired that this information reach every utility sales manager who is at this time making up loose-leaf portfolios for salesmen and every manufacturer who is now preparing sales literature for 1933.

The advantage is at once apparent. with such a standardization of size, portfolios at once take on a more uniform and attractive appearance, and permit a more orderly presentation of appliances to the customer.

Considering Using Natural Gas

Representatives of the Ohio Oil Company, Illinois Pipe Line Company and the Rocky Mountain Gas Company, recently held a conference with officials of the Laramie Gas Company of Laramie, Wyo., in which the question of substituting natural gas for artificial gas was gone into. It was stated that there is an abundance of natural gas in the Dutton Creek field and that the old pipe line of the Standard Oil Company, extending from Rock River to Laramie will be available to carry the gas. The matter is under consideration.

Executives of American Oil Burner Association Foresee Complete Sell-Out for Their Tenth Annual Show and Convention

In the first thirty days of sale approximately one-half of all available space being offered by the American Oil Burner Association, for its Tenth Annual Show and Convention, has been taken by prospective exhibitors. With the opening of the Show still more than five months away, the executives of the American Oil Burner Association foresee a complete sell-out and an attendance never previously approached.

Embodying the spirit of the World's Fair or "Century of Progress," the oil burner industry's national Show this year has been appropriately called "A Decade of Progress" and will be held in Hotel Stevens, Chicago, June 12-16.

Montreal Light, Heat & Power Announces Extension of Subscription Contracts

For the accommodation of customer subscribers to debentures of Montreal Light, Heat & Power, Montreal, Can., who have not yet completed their instalment payments, the Company announces a further extension of subscription contracts for six months to June 15th, 1933.

Interest will be credited at the rate of 3% per annum from July 1st, 1932, to date of final payment on all moneys paid on account; with necessary adjustment, of course, of accrued interest on debentures delivered between interest dates. This adjustment is necessitated by the fact that debenture interest is paid in full on the next following interest date to the debenture holder.

Brooklyn Union Gas Company Appliance Sales Again Top Figures for 1931

For the fourth successive week the Brooklyn Union Gas Company's appliance business showed a gain during the week ended December 10th, as compared with the corresponding week of last year.

Sales during this week totaled 304 units. During the same week in 1931, sales aggregated 295. A summary:

Appliance	Retail Salesmen	Dealers	Whlse	Total
Cookers and Ranges	28	43	48	189
Refrigerators	20	7	24	51
Storage Water Heaters	8	12	2	22
Gas-Fired Radiators	6	3	0	9
Radiantfires	30	3	0	33
Totals	162	68	74	304

The sales by branches were Jamaica, 64; Newtown, 40; Flatbush, 26; Brooklyn, 25; Nassau, 23; Williamsburgh, 21; Citizens' and Metropolitan, 18 each.

1933 Progress Show Inaugurated by Philadelphia Gas Works

In November of last year the Philadelphia Gas Works Company, Philadelphia, Pa., inaugurated its 1933 Progress Show.

The Company wrote to a number of large users of gas, offering them the use of display space in their six modern show rooms. The idea back of the offer was twofold—first, to give beneficial publicity to manufacturer-customers, and, second, to bring to the attention of thousands of visitors to their stores the effect of the large industrial load in making possible reductions in gas rates, while acquainting them with the variety and quality of Philadelphia-made products.

The Company pointed out that there would be no charge to the exhibitors for the display spaces used, and that they would be given advantage of a large circulation, as an average of 1,500 persons visit the sales floors daily. A diagram of the booth was attached to each letter. Each booth was to have an area of 18½ square feet.

The products, it was stated, would remain at each location for one week and then be moved to another of the Company's offices. A proviso was that no two products of the same line would be in any location at the same time.

Twenty-four customers promptly responded and took advantage of the Company's offer. This made four booths for each of the six show-rooms. The displays were made and proved to be extremely attractive.

So much interest has been manifested in the displays that they may be resumed after the first of the year.

Gas Industry to Be Represented at World's Fair

The Gas industry will be represented at the World's Fair, opening in Chicago, June, 1933. Vice-president R. B. Harper, Chairman of the American Gas Association committee in charge of the exhibit, announced that his committee has acquired approximately 4,000 square feet of space for the exhibit.

The site chosen is just south of east 28th Street, near Leif Ericson Drive, adjacent to the Home and Industrial Arts and the Lincoln group.

Kings County Lighting Company Opens New Branch Office

The Kings County Lighting Company recently opened a new branch office at 6119-27 New Utrecht Avenue, Brooklyn, N. Y. At the same time they closed two of their older branch offices, at 4802 New Utrecht Avenue and 1876 86th Street.

The company believes that they can improve their service to their customers at this more centrally located address. The new branch is situated at the very center of transportation facilities.

Personals

Charles R. Thompson, has been appointed District Superintendent at Sterling of the Northern Utilities Company, Chicago, Ill. He comes to Sterling from Albermarle, N. C., where he held a position with the Southeast Public Service Company. Mr. Thompson is a graduate of Pennsylvania State College.

E. J. Hayden, Central Division Manager of The Linde Air Products Company, Chicago, Ill., was elected president of the International Acetylene Association at its annual business meeting held recently in Philadelphia. Mr. Hayden was Vive-President of the Association.

H. G. Edmonds, who has been a supervisor in the New Business Department of the Kansas City Gas Company, Kansas City, Mo., for the past four years, has resigned to take a position with a chain of stores in Pittsburgh, Pa. Mr. Edmonds' work in his new position will be putting gas appliance departments in each of these stores.

H. S. Christman, has been appointed sales manager of The Philadelphia Gas Works Company, Philadelphia, Pa. Mr. Christman entered the employ of the Philadelphia Gas Works Company on August 22, 1910, as a clerk in the New Business Department. He remained in a clerical capacity only a short time before entering the sales division. He was appointed assistant sales manager on November 1, 1915, which position he held until his recent promotion. Mr. Christman succeeds J. B. Myers, who has retired.

Raymond C. Hohl, assistant superintendant of gas operations, Penn Central Light and Power Company, Altoona, Pa., was recently presented with award of the "Purple Heart," for Military Merit and wounds received October 4, 1918, during the Meuse-Argonne Offensive which started September 26, 1918.

Nelson E. Chance, formerly district manager of the Houston office of The Brown Instrument Company, has been appointed Assistant Sales Manager, with headquarters at Philadelphia. Mr. Chance has been with the company over ten years and for seven years was manager of the district comprising Texas, Louisiana and Southern Arkansas.

Henry M. Brundage, Jr., was recently appointed sales manager of the Washington Gas Light Company, Washington, D. C. He resigned his position as manager of the house heating and industrial division of the Westchester Lighting Co., Mount Vernon, N. Y., in October. He assumed his new duties shortly thereafter.

After completing his education at Stevens Institute of Technology, Hoboken, N. J., Mr. Brundage for four years conducted a direct mail advertising and service organization in New York. He was connected with the Socony Burner Corp., a subsidiary of the Standard Oil Co. of New York, for three years promoting domestic oil burner sales. He had been with the Westchester Lighting Co. for five years. Mr. Brundage is the son of the first vice-president of the Consolidated Gas Company of New York.

Colonel O. H. Fogg, vice-president of the Consolidated Gas Company of New York, was elected a vice-president of The New York Edison Company at a recent meeting of the directors.

Colonel Fogg is a director of the following nine companies of the Consolidated gas group: Westchester Lighting Company, Bronx Gas and Electric Company, Central Union Gas Company, Northern Union Gas Company, National Coal and Coke Company, East River Gas Company, Standard Gas Light Company, United Electric Light and Power Company, and the New York and Queens Electric Light and Power Company. He served a year as vice-president of the American Gas Association in 1926 and two years as president, beginning in 1927.

C. B. Wilson, formerly New Business Manager of the Western Cities Distributing Company at Shreveport, La., has been made New Business Manager of the Little Rock Gas & Fuel Co.

Mr. Wilson was at one time the engineer for the Parsons Gas Company. He also worked for the Kansas City Gas Company as House Heating and Industrial engineer and from Kansas City was transferred to the Joplin Gas Company as Industrial Engineer. He was transferred in April, 1930, to the Arkansas Natural Gas Corp.

Carl S. Herrmann, treasurer of The New England Power Association, Boston, Mass., recently completed twenty years of service with the Association, and was presented with his twenty-year pin.

S. A. Lipscombe, former New Business Manager of the Little Rock Gas & Fuel Company, Little Rock, Ark., has left the employ of that company to become a member of the Executive Staff of the Southern Securities Company of Little Rock.

H. B. Pearson, Compressed Industrial Gases, Chicago, was elected Vice-president of the International Acetylene Association at its recent annual meeting to succeed Mr. Hayden.

John N. Shannahan was recently elected president of the Midland United Company and chief executive officer of its subsidiary companies succeeding the late Robert M. Feustel. Mr. Shannahan becomes the ranking officer of the company as a result of the resignation of Samuel Insull, Jr., who has been vice-chairman of the company.

Mr. Shannahan was also elected chairman of the executive committee filling the vacancy caused by the resignation of Samuel Insull.

Mr. Shannahan was born in Troy, N. Y., on August 8, 1872. After his graduation as a civil engineer from Rensselaer Polytechnic Institute in 1894 he went to work for the New York Central & Hudson River Railroad, remaining there until 1899 when he entered the public utility business.

He began his public utility career as chief engineer of the Edison Electric Light and Power Company and the Fonda, Johnstown and Gloversville Railroad in New York State, both controlled by the same interests. Later he became general superintendent and then general manager of these properties. In 1903 he was elected president of the Adirondack Lakes Traction Company. From 1907 to 1911 he was vice-president and general manager of the Washington, Baltimore and Annapolis Electric Railway. He became in 1911 manager of railway operations for J. G. White & Company, owners of utility properties in various parts of the country. In 1912 he became vice-president and general manager of the Newport News & Hampton Railway Gas & Electric Company. He was elected president of that company in 1916 and remained there until he went to Omaha five years ago.

Mr. Shannahan served as president of the American Electric Railway Association in 1924-25. He has since served as chairman of the advisory council of that association. He has been president of the Omaha & Council Bluffs Street Railway Company since 1927.

R. A. Malony, has been appointed assistant sales manager of The Philadelphia Gas Works Company, Philadelphia, Pa. Mr. Malony has been with U.G.I. and system companies since 1924, in the operating, appliance sales and merchandise sales departments of the U.G.I., Philadelphia Suburban-Counties Gas and Electric Company, Philadelphia Electric Company and The Philadelphia Gas Works Company. He came to the Philadelphia Gas Works in May, 1932 as assistant to sales manager.

Arthur W. Hawks, advertising manager of the Consolidated Gas, Electric Light & Power Company of Baltimore, Md., has been appointed a member of a committee which will do special advertising work in connection with a campaign being conducted to raise $2,000,000 for relief purposes in Baltimore.

John S. Morris, vice-president and managing director of the Montreal Light Heat and Power, Montreal, Can., has been appointed president of the Company.

Mr. Morris was born in Montreal, where he received his education, graduating from Bishop's College.

He began his distinguished business career in 1889 with the Guarantee Company of North America and the Bell Telephone Company of Canada. He joined the company with which his name is now so prominently associated in 1896 when he was appointed secretary to Sir Herbert S. Holt, then president of the Montreal Gas Company.

In 1906 he was appointed as secretary-treasurer and in 1910 he took on the still wider responsibilities of general manager.

Appointed to the Board of Directors in 1917, he was at the same time elected vice-president in addition to his managerial capacity. This dual position he held until 1929 when he was appointed to the newly-created office of managing director and re-elected vice-president.

Stanley B. Finch, Supervisor of Commercial Water Heating of the New Business Department of Brooklyn Union Gas Company, has been appointed chairman of American Gas Association on Large Volume Water Heating, for the third consecutive year.

James H. Gleason recently terminated a period of 24½ years' service with The Gas Machinery Co., as draftsman, erecting engineer, chief draftsman and for the last 5 years as chief engineer.

Mr. Gleason is now engaged as engineer consultant with several Cleveland firms; his services will also be available to the gas industry as consultant engineer on the design and construction of new plant equipment, the remodeling of present plant equipment, for the manufacture of gas, reforming of natural or refinery gas, the cleaning and storage of gas and the working up of gas plant by-products to a usable product.

Mr. Gleason's headquarters for the present are located at Willoughby, O.

S. W. Girriel, has been appointed merchandise sales manager of The Philadelphia Gas Works Company, Philadelphia, Pa.

Mr. Girriel was formerly assistant headmaster at Pennington (N. J.) Seminary, and later professor of economics, Missouri Valley College. For the next four years he was industrial secretary for a group of brass companies in the Naugatuck Valley. After that he became sales counselor and director of sales education of the Sherwin-Williams Company, where he trained salesmen and sales managers. Later he became director of sales department of the Silent Automatic Corporation.

Mr. Girriel is the author of many interesting pamphlets aiming to help the salesman.

M. C. McIntyre, has been appointed the New Business Manager of the Western Cities Distributing Company at Shreveport, La. He succeeds Mr. C. B. Wilson who is now New Business Manager of the Little Rock Gas & Fuel Co., Little Rock, Ark.

Charles G. Kelly, has been appointed superintendent and engineer of manufacture of the Camden Coke Company, Camden Gas Works, Camden, N. J.

Mr. Kelly has been assistant superintendent of the Camden Coke Company since 1926. He has been identified with the construction of coke ovens and the manufacture of coke since his graduation from Ohio University in 1910. After graduation his first position was as an assistant engineer engaged in the construction of coke ovens for the La Belle Iron Works in Steubenville, O. In 1918 he took a similar position with the Koppers Construction Company, Pittsburgh, Pa., and remained there until 1926, when he accepted the position of assistant superintendent of Camden Coke Company. Mr. Kelly succeeds George W. Curtis, who has retired after forty-five years with the Camden Coke Company.

Sir Herbert S. Holt, President of the Montreal Light Heat and Power, Montreal, Can., has been appointed as chairman of the Board of Directors.

Complying with the orders of his medical advisors and the expressed wishes of his family, Sir Herbert is relinquishing some of the more arduous duties associated with the presidency. However, he will be available for consultation, advice and direction, with the active management of the company in the hands of men long associated with the business and experienced in its affairs.

Book Review

Oxweld Portable Tensile Testing Machine. 15 pages, illustrated, 6 x 9 in. Published by The Linde Air Products Company, 30 East 42nd Street, New York, N. Y.

This booklet describes the Oxweld Portable Tensile Testing Machine which has been on the market for some time. Developed by Union Carbide and Carbon Research Laboratories, Inc., this machine meets the constantly increasing need for a practical, efficient method of testing welds and qualifying welders. In a number of industries, such as aviation and pipe line construction, the use of this portable tensile testing machine has become routine.

Details of construction and complete directions for operating are contained in this booklet. There are also explanations of the proper methods of preparing coupons for testing and of calculating the tensile strength. Calculations of the ultimate tensile strength are simplified by an interesting chart of the alignment or nomographic type.

Obituary

Edwin Ruud

Edwin Ruud, president of the Ruud Manufacturing Co., Pittsburgh, Pa., died there recently after a long illness at the age of 78.

Mr. Ruud was born in Norway, June 9, 1854, and arrived in America in 1880. He worked in shops at Philadelphia, Reading and Altoona, and in 1887 was offered a position with the Westinghouse interests.

Edwin Ruud

He became associated with George Westinghouse. They grew to be close companions, traveling in Europe in search for ideas while developing the gas engine.

Mr. Ruud's first water heater was built in 1888. In 1897, the Ruud Manufacturing Company was established, and today is one of the largest water-heating manufacturing companies in the country.

The King of Norway conferred the first degree of the Order of St. Olaf on Mr. Ruud in 1924. The full order, the highest honor that may be conferred on one not living in Norway was conferred on him in 1928. In 1927 an honorary Doctor of Science degree was conferred on him by the University of Pittsburgh.

In his will Mr. Ruud gave liberally to charity; he also gave $1,000 to each Ruud employee who had been with the company 10 years and $2,000 to each employee with the company over 20 years.

Mr. Ruud is survived by his wife, his stepson and two sisters who live in Norway.

Roy A. Zeigler

Roy A. Zeigler, 52 years old, until recently in charge of the gas industry department of the World's Fair, in Chicago, died recently at Jacksonville, Fla. He was well known to the Indiana gas trade and formerly was connected with gas companies in Anderson and Muncie, Ind.

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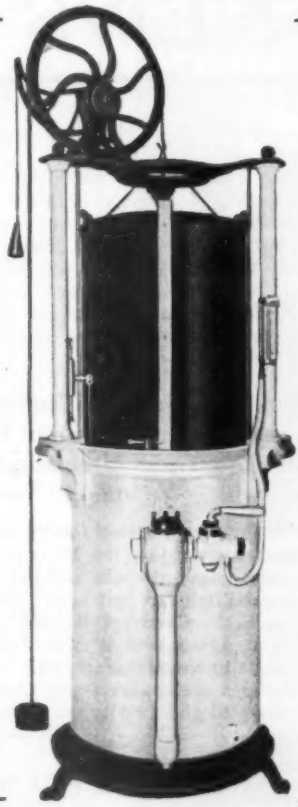

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BAROMETERS

PHILADELPHIA, THE WORKSHOP OF THE WORLD
has 14,000 Manufacturing Establishments of which many have World-Wide Reputations.

"PRINCO" STANDARD FORTIN MERCURIAL BAROMETERS

are in World-Wide use because they, too, have a "World-Wide Reputation"

THEY ARE GOOD BAROMETERS
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TRADE NEWS

Rudy November Shipments Surpass November 1931

Rudy Furnace Co., shipped five per cent more furnaces in November than in October and 10 per cent more than in November, 1931, Charles J. Biek, general manager, announced today.

Although November normally shows a seasonal decline from October, Mr. Biek stated that stimulus furnished sales by introduction of the "200 series" low priced furnace Nov. 1 has reversed the usual trend.

Shipments in the final 10 days of November were 56 per cent larger than in the second 10 day period. The second 10 day shipments were 47 per cent larger than in the first 10 days of the month.

U. S. Pipe and Foundry Company Move Their Philadelphia Office

The Eastern Sales Office of the U. S. Pipe and Foundry Company, formerly located in the Morris Building, has moved into new quarters. A suite of offices has been taken in the new Lincoln-Liberty Building which is located on the northeast corner of Broad and Chestnut Streets in Philadelphia. The personnel includes the following: Mr. H. A. Hoffer, Eastern Sales Manager; Mr. H. E. Richards, Mr. C. E. Hanlon and Miss A. C. Korb, Cashier.

Forest City Foundries Open New Office

Forest City Foundries Co., Cleveland, O., announce that they have opened an office at 250 Stuart Street, Boston, for the transaction of their New England business.

At this office will be displayed the Niagara Auxiliary Gas Furnace.

They will be represented in New England by Mr. Herbert H. Skinner, a man of wide experience in the Utility, as well as in the Gas Appliance field. He has made an enviable reputation for himself in his past performances as gas heating sales engineer for the various Utilities he has represented.

Harnischfeger Corp. Issue New Bulletin

The Harnischfeger Corporation, Milwaukee, Wis., have issued a 20 page Bulletin entitled "Weld it Well." It completely illustrates and describes their P & H Hansen Arc Welders. The Bulletin contains data on the latest developments in welding practice and Welder design. Several pages are devoted to illustrated comparisons of old time practice and modern welding methods.

A cross-section colored illustration covers the double spread in the middle of the booklet. This illustration shows the insides of the P & H Hansen Electric Arc Welder and points out, with arrows and accompanying captions, the points of efficiency of the modern arc welder. A cross-section end view is also included.

The B. F. Goodrich Rubber Company Announce a Four Page Insert for Their Mechanical Goods Catalog

A four page insert for its mechanical goods catalog on its Maxecon general service conveyor belt, and improved hot material belt has just been published by The B. F. Goodrich Rubber Company, Akron, Ohio, and is now available on request to the manufacturer. The insert discusses construction and typical applications of the two types of belting.

Taylor Forge & Pipe Works Issue New Booklet

Taylor Forge & Pipe Works, Chicago, Ill., recently issued Vol. 1, No. 2, of "Taylor Forge," treating in general the subject of welding and discussing particularly the application of Taylor forge steel fittings. The booklet contains a number of illustrations showing how various shapes of pipe are welded at time of installation.

Cribben & Sexton Co. Issue New Folder

Cribben & Sexton Co., Chicago, Ill., have issued a folder illustrating in color and describing their new Strand Universal Double Oven Six Burner Gas Range. All features and dimensions are included in descriptive matter.

Bulletin of New Bailey Fluid Meters

An attractive 24-page bulletin, No. 300, describing the new line of Bailey Fluid Meters now available, has been published by the Bailey Meter Company, Cleveland, Ohio.

This bulletin describes and illustrates the several types of meters which can be furnished. Other sections of the bulletin deal with the application and methods of installation of the equipment.

Numerous illustrations are included in the bulletin, comprising detailed drawings, diagrammatic sketches, equipment photographs, installation photographs, and chart reproductions in four colors.

Bristol Company Establishes Factory in England

The Bristol Company of Waterbury, Connecticut, announced recently the establishment on October 1, 1932, of a British factory at London, England, under the name of Bristol's Instrument Company Limited, incorporated under the Companies Act 1929.

Since the year 1889, The Bristol Company has enjoyed a very substantial trade with Great Britain, its selling activities in that country being handled by J. W. & C. J. Phillips, Ltd., as sales agent.

Mr. Howard H. Bristol, President of The Bristol Company, recently made a special trip to London to investigate the situation and during his visit laid the plans and arranged for the formation of the British Company. Mr. Bristol is Chairman of the Board of Directors and Mr. Alexander L. Dugon, of J. W. & C. J. Phillips, Ltd., is Vice-Chairman and Managing Director. The plant is located at 144 Pomeroy Street, New Cross, London, and consists of an office building and a new two story factory building of modern construction.

Roots-Connersville-Wilbraham Enjoy Business Increase

Roots-Connersville-Wilbraham, manufacturers of blowers, pumps and meters, report the largest volume of unfilled orders since last March. Orders booked during November exceeded the total for the same month in 1931, this being the second comparative monthly gain for the current fiscal year over last.

Brown Instrument Company Issues New Broadside

The Brown Instrument Company, Philadelphia, Pa., has recently issued a broadside featuring the announcement of the new Brown Mechanical Flow Meter. Copies of this broadside may be obtained upon request.

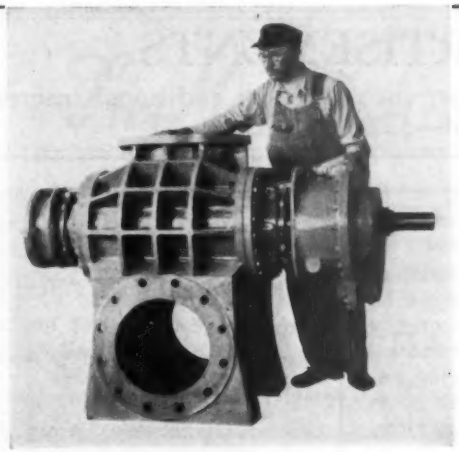
New Bulletin Is Issued by Lewis Air Conditioners, Inc.

Lewis Air Conditioners, Inc., Minneapolis, Minn., have issued a Bulletin entitled "To Control Humidity." A cross view section of their control instrument "Humitrol" is shown as well as information regarding construction, operation and control is included.

New Kerotest Catalog

The Kerotest Manufacturing Company, Pittsburgh, has recently issued a new forty-eight page catalog describing their complete line of Forged Brass Valves and Fittings for mechanical refrigeration service.

A copy may be obtained by writing direct to the manufacturer.



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AUTOMATIC ELECTRIC TOASTER
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Many other leading manufacturers use Chace Bimetal because of its accuracy, uniformity and dependability. Submit your problems to Chace engineers.

CHACE THERMOSTATIC BIMETAL
"It Bends with the Heat"

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Unusually Sensitive Control

for High Pressure Gas Transmission

The Fulton Duplex Sensitive Gas Governor is designed to meet the needs of artificial or natural gas companies who desire to control a high and varying inlet pressure and reduce it to a low and unvarying outlet pressure, for illuminating or fuel purposes.

The power to operate this governor is derived from two diaphragms of equal area, moving in opposite directions, but transmitting their power in the same direction. This gives a vast increase in sensitiveness and power over that possessed by a governor with a single diaphragm.

The Governor is easily and quickly installed, and due to the simplicity of its construction, requires but little attention afterward.

Catalogue on request.

The Chaplin-Fulton Mfg. Co.
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WANTED

SECOND HAND WATER GAS SET, Prefer four foot six inch but will consider four or five foot. Give complete data, history and location. The Easton Utilities Commission, Easton, Md.

MODERNIZE WITH MOHAWK PRODUCTS

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MOHAWK HI-SPEED TRAILER

TOOL AND SUPPLY TRAILERS FOR GAS AND ELECTRIC COMPANIES

HOTSTUF BITUMEN HEATERS

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MOHAWK ASPHALT HEATER CO.

AMERICAN LIGHT & TRACTION COMPANY
Dividend Notice

The Board of Directors of AMERICAN LIGHT & TRACTION COMPANY, at a meeting held December 28, 1932, declared the regular quarterly dividend of 1½% on the Preferred Stock, and a dividend of 50 cents per share on the Common Stock, both payable February 1, 1933, to stockholders of record at the close of business January 13, 1933.

The transfer books will not be closed.

JAMES LAWRENCE, Secretary.

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Intensely Active. High Total Sulphur Absorption at Minimum Cost.

"THE EFFICIENT PURIFIER"

The Sponge with the large Tough Shavings Always Uniform

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Manufacturers of GOVERNORS, APPARATUS and EQUIPMENT

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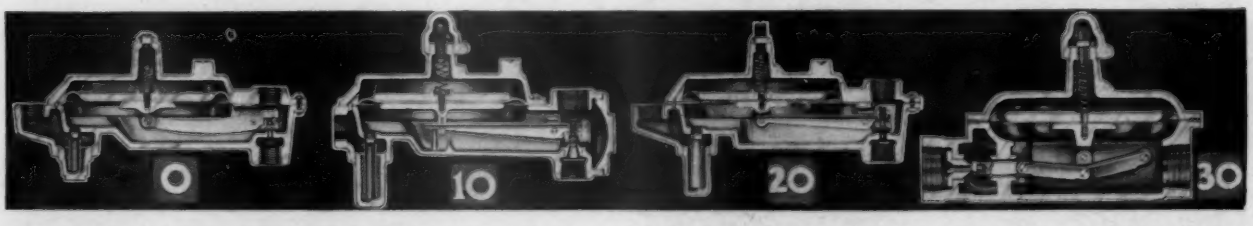

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